



ENTOMOPHTHOROMYCOTA:

Basidiobolomycetes, Neozygityomycetes and Entomophthoromycetes

FULLY INDEXED

[INCLUDES 1568 ISOLATES]

USDA-ARS Biological Integrated Pest Management Research
Robert W. Holley Center for Agriculture and Health
538 Tower Road
Ithaca, New York 14853-2901

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ARSEF Collection Staff

Richard A. Humber, Curator

phone: [+1] 607-255-1276
fax: [+1] 607-255-1132
email: richard.humber@ars.usda.gov

Karen S. Hansen

phone: [+1] 607-255-1274
fax: [+1] 607-255-1132
email: arsef@cornell.edu

Micheal M. Wheeler

phone: [+1] 607-255-1274
fax: [+1] 607-255-1132
email: mmw5@cornell.edu

USDA-ARS Biological IPM Research Unit
Robert W. Holley Center for Agriculture & Health
538 Tower Road
Ithaca, New York 14853-2901, USA

IMPORTANT NOTE

Major new classifications for fungal pathogens of invertebrates and new nomenclatural rules

Richard A. Humber

Insect Mycologist and Curator, ARSEF

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Some seemingly dramatic and comparatively recent changes in the classification of a number of fungi may continue to cause confusion or a degree of discomfort to many of the clients of the cultures and informational resources provided by the ARSEF culture collection. This short treatment is an attempt to summarize some of these changes, the reasons for them, and to provide the essential references to the literature in which the changes are proposed.

As the Curator of the ARSEF collection I wish to assure you that these changes are appropriate, progressive, and necessary to modernize and to stabilize the systematics of the fungal pathogens affecting insects and other invertebrates, and I urge you to adopt them into your own thinking, teaching, and publications.

The identifications in the ARSEF catalogs (<http://www.ars.usda.gov/Main/docs.htm?docid=12125>) incorporate these new classifications as soon as we can confirm the correct new identifications of fungi and, where genera or species are being split on molecular grounds, to determine and to apply the correct new identifications.

General Reclassification of Fungi

The results of a global cooperative effort involving dozens of mycologists (including the curator of this collection) to reclassify the fungi according to phylogenetically sound principles based on the DNA sequence data for multiple genes has recently resulted in the publication of two monumentally important publications that completely rework mycological systematics. The earlier publication was a phylogenetic overview of virtually all fungi (James *et al.* 2006). The second publication (Hibbett *et al.* 2007) provided the necessary taxonomic readjustments that were indicated by the phylogenetic studies.

Microsporidia

Many mycologists and invertebrate pathologists are now aware that the Microsporidia have been proven beyond any reasonable doubt to be comparatively recent and highly derived endobiotic fungi. They are neither extremely ancient eukaryotes nor affiliated with protozoans as most textbooks indicate. None of this realignment to the fungi is being disputed by either microsporidiologists or phylogenetic mycologists. The rationale for this realignment is presented succinctly in James *et al.* (2006). These fascinating organisms connect to the fungal tree of life at the base of the nonflagellate fungi (among or near the fungi traditionally treated as the Zygomycota) but their exact affinities and nearest remain uncertain.

Zygomycota, Zygomycotina, Zygomycetes and Entomophthorales

The phylogenetic reclassification of fungi (Hibbett *et al.*, 2007) significantly modified the traditional view of the most ancestral nonflagellate fungi. The phylum Zygomycota, subphylum Zygomycotina, and class Zygomycetes disappeared in their widely understood sense to be replaced by the phylum Glomeromycota (for arbuscular mycorrhizal fungi) and a series of new subphyla not yet assigned to any phylum (because of the obviously polyphyletic nature of the zygomycetes as traditionally treated). The Entomophthorales is reclassified in the subphylum Entomophthoromycotina Humber (in Hibbett *et al.* 2007); the other new subphyla in this group are the Mucoromycotina (which was incorrectly given in previous catalogs as 'Mucormycotina'), Zoopagomycotina and Kicxellomycotina. Where there had been some question about whether *Basidiobolus* and its close relatives should

be retained in the Entomophthorales or moved to a position closer to some of the blastocladialean watermolds, James *et al.* (2006) unequivocally retain *Basidiobolus* in an ancestral position in the Entomophthorales, and all of these fungi have now been shown to represent a monophyletic group that is distinct from all other zygomycetous fungi. Humber (2012) described a new phylum, Entomophthoromycota, for these fungi, recognized three classes in this phylum: Basidiobolomycetes (for Basidiobolales and Basidiobolaceae), Neozygitomycetes (for the new order Neozygitales and previously described family Neozygitaceae), and Entomophthoromycetes (Entomophthorales, now restricted to Acanthostichaceae, Completoziaceae, Entomophthoraceae, and Meristacraceae). The genera *Ballocephala* and *Zygnemomyces* were removed from Entomophthorales to the Kickxellomycotina because these fungi have plugged, bifurcate septa characteristic of that subphylum.

Entomopathogenic Ascomycetes and Associated Anamorphic (Conidial) States

Among all of the major taxonomic changes within the fungi that affect entomopathogenic fungi, the most dramatic and far-reaching involve the ascomycetes and their conidial (anamorphic) states classified among the pyrenomycetous fungi of the order Hypocreales. In one of the first major changes to be noted, those ascomycetous entomopathogens whose ascospores are produced in perithecia (nearly closed spherical to flask-like fruiting bodies) are now put in the class Sordariomycetes, a name based on a valid generic name, rather than in the historically familiar class Pyrenomycetes, a name based on the morphology of the fruiting body. The great majority of these fungi have long been recognized to belong in the family Clavicipitaceae (mostly in the genera *Cordyceps*, *Torrubiella* or *Hypocrella*). A major phylogenetic reclassification of the Clavicipitaceae (Sung *et al.* 2007; available free of charge at <http://www.studiesinmycology.org>) has split this family into three (Table 1), a long overdue major reworking of the taxonomy of *Cordyceps* and, subsequently, a reshuffling of anamorphic states among these families. This publication by Sung *et al.* (2007) is very long and complex since it includes a highly detailed phylogenetic analysis of these fungi as well as presenting the new taxonomy, descriptions of new families, genera, and species, and a very large number of new combinations (mostly segregating *Cordyceps* into their newly described segregate genera), and listing of the known or suspected anamorphic states associated with these taxa.

Note that Table 1 shows *Torrubiella* to be split between two families. This is an untenable position in a phylogenetically based classification that requires all taxa to represent monophyletic lineages. Future phylogenetic studies that will result in the reclassification of *Torrubiella* are obviously required. Also note that some anamorphic states with morphologies referable to *Hirsutella*, *Paecilomyces* and *Verticillium* (the latter

Table 1. Summary of some major teleomorphic (sexual) and anamorphic (conidial) genera of Hypocreales pathogenic to invertebrates (Sung *et al.* 2007).

	FAMILY		
	Clavicipitaceae	Cordycipitaceae	Ophiocordycipitaceae
Teleomorphs:	<i>Hypocrella</i> , <i>Metacordyceps</i> , <i>Regiocrella</i> , <i>Torrubiella</i>	<i>Cordyceps</i> s.str., <i>Torrubiella</i>	<i>Ophiocordyceps</i> , <i>Elaphocordyceps</i>
Anamorphs:	<i>Aschersonia</i> , <i>Metarhizium</i> , <i>Nomuraea</i> , <i>Paecilomyces</i> -like ¹ , <i>Pochonia</i> , <i>Rotiferophthora</i> , <i>Verticillium</i> -like ²	<i>Beauveria</i> , <i>Engyodontium</i> , <i>Isaria</i> , <i>Lecanicillium</i> , <i>Mariannaea</i> -like, <i>Microhilum</i> , <i>Simplicillium</i>	<i>Haptocillium</i> , <i>Harposporium</i> , <i>Hirsutella</i> , <i>Hymenostilbe</i> , <i>Paraisaria</i> , <i>Purpureocillium</i> <i>Sorosporella</i> , <i>Syngliocladium</i> , <i>Tolyphocladium</i> , <i>Verticillium</i> -like ²

¹ Species formerly in *Paecilomyces* sect. *Isarioidea*, now excluded from *Paecilomyces* in the strict sense but also from *Isaria* (which now includes most entomogenous species transferred from *Paecilomyces*).

² Species formerly in *Verticillium* sect. *Prostrata*, now excluded from *Verticillium* in the strict sense but not yet reclassified in the segregate genera recognized by Zare and Gams (see below).

Table 2. Publications eliminating and reclassifying *Verticillium* section *Prostrata*

PART	AUTHORS	SUBJECT COVERED
1	Zare, Gams & Culham (2000)	ITS sequence analyses
2	Sung, Spatafora <i>et al.</i> (2001)	SSU, LSU rDNA sequence analyses
3	Gams, Zare (2001)	Generic reclassification
4	Zare, Gams (2001)	<i>Lecanicillium</i> and <i>Simplicillium</i> monograph
5	Zare, Gams, Evans (2001)	<i>Pochonia</i> , <i>Rotiferophthora</i> monograph
6	Zare, Gams (2001)	<i>Haptocillium</i> monograph

Table 3. Current phylogenetically based classification within Hypocreales of some species formerly classified in *Paecilomyces* sect. *Isarioidea* (following Luangsa-ard *et al.* 2005; Sung *et al.* 2007; Luangsa-ard *et al.* 2011)

FAMILY	GENUS	INCLUDED SPECIES
Clavicipitaceae	' <i>Paecilomyces</i> ' ¹	<i>carneus</i> , <i>marquandii</i>
Cordycipitaceae	<i>Isaria</i>	<i>amoenorosea</i> , <i>cateniannulata</i> , <i>catenobliqua</i> , <i>cicadae</i> , <i>coleopterora</i> , <i>farinosa</i> , <i>fumosorosea</i> , <i>ghanensis</i> , <i>tenuipes</i>
Ophiocordycipitaceae	<i>Purpureocillium</i>	<i>lilacinum</i> (<i>syn.</i> : <i>Paec. lilacinus</i>)

¹ No generic re-assignments have been made for these hypocrealean anamorphs that continue (for lack of better alternatives) to be treated provisionally as *Paecilomyces* species. The generic affinities of other excluded '*Paecilomyces*' species noted by Luangsa-ard *et al.* (2005) remain uncertain.

two genera in their old senses from before recent phylogenetic reclassifications discussed below may occur in more than one family; this underscores the need to regard anamorphic states as being named in form-genera defined only by their morphologies and similar modes of development rather than by phylogenetic relatedness.

Phylogenetically based reclassification of *Verticillium* section *Prostrata* – The extensive, phylogenetically based reclassifications of conidial fungi that common pathogens of insects or other invertebrates began with the reclassification of *Verticillium* species. The venerable classification of this genus (Gams 1971) recognized the sections *Verticillium* and *Prostrata*. All species in *Verticillium* sect. *Verticillium*, which included the phytopathogens with well differentiated, erect conidiophores, are anamorphs of perithecial ascomycetes in the order Phyllachorales. The species in *Vert.* sect. *Prostrata*, however, were anamorphs attributable to the order Hypocreales (Sordariomycetes). Because the current systematics practices recognize monophyletic taxa, it was necessary to remove the species from *Verticillium* section *Prostrata* to other genera. This reclassification was done in six publications (Table 2) reflecting primarily the doctoral research of Rasoul Zare under the guidance of Walter Gams. Most entomopathogens from this group are now placed in *Lecanicillium*, a genus whose type species, *L. lecanii*, was also recognized to be a species complex recognized to include at least three species (*L. lecanii*, *L. muscarium*, and *L. longisporum*) and thus replacing the morphologically highly variable *Verticillium lecanii*.

Phylogenetically based reclassification of *Paecilomyces* section *Isarioidea* – The long-used taxonomy of *Paecilomyces* by Samson (1974) divided this genus into two sections, and with all entomopathogens treated in *Paecilomyces* sect. *Isarioidea*. The type species, *P. variotii* Bainier, and all species in *Paecilomyces* sect. *Paecilomyces* are anamorphic (conidial) states of cleistothelial ascomycetes in the Eurotiomycetes. In an exact parallel with the situation for the two sections of *Verticillium*, all species in *Paec.* sect. *Isarioidea* are anamorphic states of pyrenomycte ascomycetes in the order Hypocreales, mostly in the family Clavicipitaceae although the reclassification of that family by Sung *et al.* (2007) now disperses these former *Paecilomyces* species among three families (Table 3). The taxonomic revision of *Paecilomyces* section *Prostrata* began with the lectotypification and determination of the status of *Isaria* (Hodge *et al.* 2005), a genus long ago relegated to synonymy with *Paecilomyces*, and the formal conservation of the generic name *Isaria* (Gams *et al.* 2005). The next step was a phylogenetic study that confirmed the polyphyletic nature of *Paecilomyces* in the broad sense (Luangsa-ard *et al.* 2004), followed then by a formal reclassification (with new combinations) of most species from *Paec.* sect. *Isarioidea* into *Isaria* while several other

species from this section were excluded from both *Paecilomyces* and *Isaria* and still await transfers into appropriate anamorphic genera (Table 3). Most recently, *Paec. lilacinus* was transferred to a new (as yet monotypic) genus in Ophiocordycipitaceae as *Purpureocillium lilacinum* (Luangsa-ard *et al.* 2011).

EXTREMELY IMPORTANT NEWS ABOUT CHANGES IN FUNGAL NOMENCLATURAL RULES

Dual nomenclature for anamorphic and teleomorphic generic names has been eliminated – The long-used established and accepted use of a dual nomenclatural system under the International Code of Botanical Nomenclature was replaced during the 2012 International Botanical Congress in Melbourne, Australia, and replaced with a new standard generally referred to as *One Fungus = One Name* (or by the shorter *1F=1N*) (Hawksworth 2011, Hawksworth *et al.* 2011, Norvell 2011, Taylor 2011) under which a still undefined, unstaffed system of committees of mycologists will have to consider all linked conidial (anamorphic) and sexual (teleomorphic) genera of pleiomorphic fungi and choose one generic name—generally expected to be the oldest published applicable name—will be accepted (prioritized?) while the use of all other linked generic names will be suppressed, and the species in the suppressed genera will need to be transferred to the accepted (prioritized) genus. Since no committees have yet been established nor any decisions rendered, no official information can be given here to suggestion exactly how entomopathogenic fungi (especially those in Hypocreales) will be affected, but it is that the following will represent a few of the **probable** resulting decisions for some of these fungi in the following families. The probable **ACCEPTED** generic names are given followed by the linked **genera to be suppressed and synonymized** in parentheses :

Clavicipitaceae: **METARHIZIUM** (*Metacordyceps*, *Nomuraea*, *Pochonia*, *Rotiferophthora*, etc.)

Cordycipitaceae: **CORDYCEPS** (*Beauveria*, *Isaria*, *Lecanicillium*, *Microhilum*, *Simplicillium*, etc.)

Ophiocordycipitaceae: **OPHIOCORDYCEPS** (*Hirsutella*, *Hymenostilbe*, *Paraisaria*, *Purpureocillium*, *Sorosporella*, *Syngliocladium*)

Because *Ophiocordyceps* is a much newer genus than some of its linked anamorphic (conidial) genera, it may not eventually be the case that this teleomorphic genus will be accepted as prioritized over its anamorphs; none of those anamorphic genera may be regarded as sufficiently important (except, possibly, *Hirsutella*) to be accepted in place of *Ophiocordyceps*. The problem with *Hirsutella*, however, is that this genus is very plastic and comparatively poorly understood despite its many described species, and its species are anamorphic states for fungi in all three of the families listed above.

Some of the problems of the loss of Article 59 of the ICBN (now renamed the International Code of Nomenclature for algae, fungi and plants) and of dual nomenclature are discussed by Gams *et al.* (2012). No official changes in this highly disruptive new standard for fungal nomenclature are possible until the 2017 Botanical Congress at the earliest, and it will probably be unrealistic to expect any significant change of the newly adopted rules (and even much less likely that the situation will be reversed to reflect procedures before the 2012 changes).

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ARS COLLECTION OF ENTOMOPATHOGENIC FUNGAL CULTURES

History and Purpose of the ARSEF Collection

The goal of the ARS Collection of Entomopathogenic Fungal Cultures (ARSEF) is to provide fundamental support for basic and applied research on the fungal pathogens of invertebrates. Since its establishment in the early 1970s, this collection has served as a general research resource for the isolation, collection, preservation, and distribution of fungal strains from insects, other arthropods, and nematodes. Emphasis has always been placed on acquiring and distributing strains under active study for use as potential biological control agents. Basic research associated with the collection includes fungal systematics, fungal cytology, pathobiology, and methodology for fungal cryopreservation. The culture collection and its associated collection of microscope slides and herbarium specimens provide invaluable support for taxonomic research on and the diagnoses of fungal pathogens of invertebrates. Identification services for specimens and cultures have always been available free of charge to any laboratories requesting them.

We strive to provide users with pure and accurately identified fungal cultures., and the taxonomies applied to the fungi in this collection are continuously updated to reflect their current accepted classifications. The curator of the collection welcomes all correspondence about nomenclatural or taxonomic changes or possible misidentifications involving any ARSEF strains.

The ARSEF collection began as Richard Soper's research collection in the USDA-ARS laboratory at the University of Maine (Orono; UMO) where its cultures were at initially designated by a UMO or RS prefix before adopting ARSEF in 1985. In 1978, the ARS Insect Pathology Research Unit relocated to Ithaca, NY, to work with the Boyce Thompson Institute (BTI) on the Cornell University campus. The Insect Pathology Research Unit became the Plant Protection Research Unit (PPRU) in 1985, and was renamed in 2008 as the Biological Integrated Pest Management Research Unit (BioIPM). The ARSEF collection moved from BTI in 1990 into the US Plant, Soil & Nutrition Laboratory which was rededicated in 2008 as the Robert W. Holley Center for Agriculture & Health to commemorate Dr. Holley's work there to complete the first sequencing of any nucleic acid; he received the 1968 Nobel Prize for Medicine or Physiology for this work.

BioIPM operates the ARSEF culture collection for the USDA Agricultural Research Service; the collection is not now and has never been owned or controlled by the Boyce Thompson Institute. ARSEF is one of the largest germplasm collections in the ARS, and is widely recognized for its active support of research on fungal pathogens of invertebrates. ARSEF and its associated herbarium are registered under the ARSEF acronym since 1985 with the World Federation of Culture Collections' World Data Center on Microorganisms and the International Association of Plant Taxonomists' *Index Herbariorum*, respectively.

From 1977 through 2008, all strains in the collection were preserved by immersion in liquid nitrogen. A program to lyophilize those isolates that could tolerate such was begun in the 1990's, and has expanded in scope and pace. At the end of 2008 the vast majority of the collection was consolidated in a single large nitrogen dewar in a new facility adjacent to the current building. Requests for cultures are filled with either actively growing cultures on appropriate media or, if available, as freeze-dried units.

Identifying and Acknowledging ARSEF Strains in Publications

We request that all publications using or referring to strains obtained from ARSEF acknowledge the U.S. Department of Agriculture, ARS Plant Protection Research Unit and state the ARSEF accession numbers of these strains. We would very greatly appreciate receiving reprints of all past, current, and future publications or even periodic notification about research in progress involving the use of ARSEF strains.

Accession numbers of strains from commercial culture collections such as the American Type Culture Collection (ATCC), Centraalbureau voor Schimmelcultures (CBS), CAB International Mycological Institute (IMI), and other registered general service collections are listed in this catalog to provide complete information about specific isolates. ***Representation of cultures obtained from ARSEF as being from ATCC, CBS, IMI or UAMH or other general service culture collections violates trademark laws, and persons doing so are subject to prosecution.*** Cultures received from ARSEF should be referred to by their ARSEF numbers only even if they are co-deposited in other other culture collections.

Depositing and Exchanging Cultures

BioIPM and ARSEF encourage deposition of entomopathogenic fungal cultures in the ARSEF collection—particularly strains used in published studies—and of voucher and reference specimens to its herbarium. Depositors may reserve the right to limit redistribution of any culture deposited with ARSEF for specified times upon consultation with the curator. Depositors can receive subcultures of their own depositions at any time; these cultures do not affect any allowances of free cultures. Exchanges of cultures between ARSEF and other research or general collections of fungal cultures are encouraged and are not subject to numerical limits.

Prior to shipping cultures from countries outside the United States contact the Curator to obtain the appropriate needed importation permit from the U.S. Department of Agriculture, Animal and Plant Health Inspection Services, Plant Protection and Quarantine.

When sending cultures and/or specimens to ARSEF, it is very important to include as much of the following information as possible:

1. Scientific name (and taxonomic authority) of the fungus.
2. Common and scientific name (with taxonomic authority) of the host.
3. Order and family of the host. (***This information is especially important!***)
4. Date and site of collection.
5. Name of collector.
6. Date and name of isolator.
7. Any collection, accession, or other identifier number(s) applied by the collector or sender.
8. Medium on which a culture is sent.
9. Any special requirements or conditions for growth (such as medium, temperature, pH).

Diagnostic Services for Cultures and Specimens

Specimens and cultures of unidentified fungi from invertebrates can be submitted to ARSEF for diagnosis. This service is an important function of the ARS Collections of Entomopathogenic Fungi and is provided without charge. Identifications and information about the disposition of specimens will be mailed to the sender.

Release of ARSEF Cultures from Containment or Quarantine

Neither the curator nor any employee of ARSEF or of the Plant Protection Research Unit is entitled to authorize the release of any culture it provides from laboratory containment or quarantine in the United States or elsewhere. Recipients of ARSEF cultures are responsible for obtaining appropriate and necessary permissions from or for providing official notifications to State and Federal regulatory agencies.

ORDERING INFORMATION

Please send all requests for isolates directly to the Curator (Richard A. Humber):

ARS Collection of Entomopathogenic Fungal Cultures
Robert W. Holley Center for Agriculture & Health
Tower Rd.
Ithaca, NY 14853-2901

Telephone: [+1] 607 255-1276
OR
Fax: [+1] 607 255-1132
Email: richard.humber@ars.usda.gov

Academic, Government, and Other Nonprofit Institutions

1–12 isolates [up to 24 per calendar year]	no charge
13 or more isolates per order [25 or more per calendar year]	US\$60 per isolate

Users from nonprofit institutions can receive up to five isolates without charge in any 6 month period, and up to seven cultures in any calendar year. Requests in excess of these limits may be charged at the rate of US\$60 per additional isolate requested. Requests from commercially sponsored research programs undertaken by nonprofit institutions are charged at the commercial rate and are not subject to numerical limits. Prices are subject to change without notice.

Commercial and Industrial Institutions

US\$85 per isolate

Nonprofit institutions working on commercially sponsored contractual projects (such as screening programs) are charged at the rate of US\$85 per strain requested. There are no limits on the numbers of cultures that can be requested or shipped. Prices are subject to change without notice.

Commercial or industrial firms supporting research at the ARS Plant Protection Research Unit are entitled to free access to cultures pertinent to contracted projects; all other requests are charged at the current rate.

TERMS OF SHIPMENT

If necessary, billings for isolates are issued through the Boyce Thompson Institute (BTI). *Checks or money orders for strains must be payable to the Boyce Thompson Institute* and sent directly to the curator of the ARS Collections of Entomopathogenic Fungi, to BTI or deposited by direct electronic funds transfer according to information provided by BTI. Consult the curator of the collections with questions about fees due for any particular shipment.

All recipients of cultures are strongly encouraged to provide express shipper account numbers to allow shipping costs to be billed directly to recipients, thus assuring significant cost-savings to the ARSEF collection.

We request confirmation of receipt and viability of cultures shipped. Inviable strains will be replaced.

ARSEF reserves the right to refuse to ship isolates

- to recipients who cannot handle them using standard microbiological practices,
- to laboratories that cannot assure laboratory containment of isolates except after obtaining permissions from applicable State and Federal regulatory agencies, or
- if use of routine mailing or shipping procedures cannot assure the receipt of viable cultures.

Neither ARSEF, BiolPM, nor the Boyce Thompson Institute is liable for damages arising from the misidentification of strains.

INTERPRETATION OF STRAIN ACCESSION DATA

The following examples provide a guide to the arrangement and interpretation of collection data included in this catalog.

***Beauveria bassiana* (Balsamo) Vuillemin**

1564 [CBS 111238]. KV Deséo (103) Cortellini. Pupa, *Hyphantria cunea* [Lepidoptera: Arctiidae]. Mar 1984. Italy: Villa Cadé (Reggio Emilia), Emilia-Romagna. Identification verified genomically. Ex-type isolate.

1564	ARSEF accession number.
[CBS 111238]	Alternative deposition in another culture collection.
KV Deséo (03)	Depositor and depositor's reference or accession number.
Cortellini	Collector of this isolate.
<i>Hyphantria cunea</i> [Lepidoptera: Arctiidae]	Original host [host's order and family]
Mar 1984	Date of accession or receipt by ARSEF.
Italy: Villa Cadé (Reggio Emilia), Emilia-Romagna	Country of origin followed by the locality and state.
Identification verified genomically. Ex-type isolate	Additional essential information about this isolate.

***Conidiobolus thrombooides* Drechsler**

73 [CSIRO EM534; FPMI 28] RG Kenneth (3040) ← ATCC (24419) ← DM MacLeod ← G Thoizon. *Rhopalosiphum insertum* [Homoptera: Aphididae]. Rec'd 18 Jan 1976. France: Val-de-Marne, La Varenne.

73	ARSEF accession number.
[CSIRO EM534; FPMI 28]	Alternative depositions of this strain in other culture collections.
RG Kenneth (3040)	Depositor and depositor's reference or accession number.
← ATCC (24419 ← DM MacLeod ← G Thoizon	Culture provenance: RG Kenneth obtained the culture from ATCC, which received it from DM MacLeod, who received it from G Thoizon.
<i>Rhopalosiphum insertum</i> [Acari: Eriophyidae]	Original host [host's order and family]
Rec'd Jan 18 1976	Date of receipt by ARSEF.
France: Val-de-Marne, La Varenne	Country of origin followed by the locality and region.

***Hirsutella thompsonii* Fisher**

137 [ATCC 24874; CBS 952.73] CW McCoy (Fla. 68). *Phyllocoptrus oleivora* [Acar: Eriophyidae]. 1 Jan 1970. USA: Orlando, Florida.

137	ARSEF accession number.
[ATCC 24874; CBS 952.73]	Alternative depositions of this strain in other culture collections.
CW McCoy (Fla. 68)	Depositor and depositor's reference or accession number.
<i>Phyllocoptrus oleivora</i> [Homoptera: Aphididae]	Original host together with the host's order and family.
Jan 1 1970	Date of accession or receipt by ARSEF. Note: January 1 is a default date if an exact date in a year is unknown; the first day of the month is the default if no specific day in a month is known.
USA: Orlando, Florida	Country of origin followed by the locality and state.

ABBREVIATIONS

Information about the world's officially registered culture collections, their registered acronyms (e.g., ARSEF), and more is available from the CCINFO database and from other resources available at the website of the World Data Center for Microbiology <http://wdcm.nig.ac.jp/WDCHomePage_text.html>

ARSEF	ARS Collection of Entomopathogenic Fungi, USDA-ARS BioIPM Research Unit, Robert W. Holley Center for Agriculture & Health, 538 Tower Rd., Ithaca, New York, 14853-2901, USA
ATCC	American Type Culture Collection, PO Box 1549, Manassas, Virginia 20108, USA
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza, Proyecto UIP, Apdo. Postal 7170, Turrialba, Costa Rica.
CBS	Centraalbureau voor Schimmelcultures, Uppsalaalaan 8, 3584 CT Utrecht, The Netherlands
CCF	Culture Collection of Fungi, Department of Botany, Charles University, Prague, Czech Republic
CCFC	Canadian Collection of Fungus Cultures, Centre for Land and Biological Resources Research, Room 1015, K.W. Neatby Bldg., Ottawa, Ontario K1A 0C6, Canada
CDC	Centers for Disease Control and Prevention, Atlanta, Georgia 30333, USA
CENARGEN	Centro Nacional de Pesquisa de Recursos Geéticos e Biotecnologia, S.A.I.N. Parque Rural, C.P. 102372, 70770 Brasília, D.F., Brazil
CIRI	Corn Insects Research Unit, USDA-ARS, R.R. Box 45B, Ankeny, Iowa 50021, USA
CNPAF	National Center for Agricultural Research on Rice and Beans, EMBRAPA, Goiânia, Goiás, Brazil
CNPS	National Center for Agricultural Research on Soybeans, EMBRAPA, Londrina, Paraná, Brazil
CP	Strains isolated during joint US-Brazil program funded by US-AID to study fungal biocontrol of the insect pests of cowpeas
DAOM	National Mycological Herbarium, Centre for Land and Biological Resources Research, Agriculture Canada, Central Experimental Farm, Ottawa, Ontario, K1A 0C6, Canada
DAR	New South Wales Department of Agriculture, Rydalmere, NSW, Australia
EFCC	Korean Entomopathogenic Fungal Collection (JM Sung, Curator), Dept. of Agricultural Biology, Kangwon National University, Chuncheon, Rep. of Korea
FI	CSIRO Entomology Division, Collection of Entomopathogenic Fungi, Black Mountain Laboratories, Canberra, ACT, Australia. This collection, formerly curated by R. Milner, is now orphaned and is being transferred to ARSEF.
FPMI	Great Lakes Forestry Center (formerly Forest Pest Management Institute), 1219 Queen Street East, Sault Ste. Marie, Ontario P6A 5M7, Canada. This collection, formerly led by D MacLeod and D Tyrrell is orphaned and endangered. Its surviving isolates <i>may</i> be

transferred to DAOM.

GCRI	Horticulture Research International (formerly, Glasshouse Crops Research Institute), Worthing Road, Littlehampton, W. Sussex BN17 6LP, England, UK
HACC	Hindustan Antibiotics Ltd., Pimpri, Poona, India
IMI	(Now incorporated in United Kingdom National Culture Collection [UKNCC]) CABI Bioscience, Bakeham Lane, Egham, Surrey TW20 9TY, UK
INRA	Station de Recherches de lutte Biologique et Biocoenotique, INRA (Institut National de la Recherche Agronomique), La Minière – 78280 Guyancourt, France
IPLB	Unité de Lutte Biologique, Institut Pasteur, 28 Rue de Dr. Roux, 75724 Paris, France
IRRI	International Rice Research Institute, P.O. Box 933, Manila, Philippines
KEFC	(see EFCC)
KSU	Kansas State University, Department of Entomology, Manhattan, Kansas 66506, USA
MAF	Ministry of Agriculture and Fisheries, Canterbury Agriculture and Science Centre, Ellesmere Junction Road, P.O. Box 24, Lincoln, New Zealand
MU	Miami University, Willard Sherman Turrell Herbarium, Department of Botany, 79 Upham Hall, Oxford, Ohio 45056, USA
NCTC	National Collection of Type Cultures, Public Health Laboratory Service, 61 Colindale Ave., London NW9 5HT, England, UK
NRRL	ARS Culture Collection, USDA-ARS National Center for Agricultural Utilization Research, 1815 N. University, Peoria, Illinois 61604, USA
PSU	<i>Fusarium</i> Research Center, The Pennsylvania State University, 216 Buckhout Laboratory, University Park, Pennsylvania 16802, USA
QEC	Queen Elizabeth College, University of London, Department of Biology, Campden Hill Road, London W8 7AH, England, UK
QM	U.S. Army Natick Laboratories (formerly, Quartermaster Research and Development Center), Natick Massachusetts. Note: This collection has been transferred to NRRL.
RSA	Rancho Santa Ana Botanic Garden, 1500 North College Ave., Claremont, California 91711, USA
SBI	Sugarcane Breeding Institute, Indian Council of Agricultural Research, Coimbatore – 641 007, Tamil Nadu, India
UAF	University of Arkansas, Department of Entomology, 321 Agriculture Building, Fayetteville, Arkansas 72701, USA
UAMH	University of Alberta Microfungus Collection, Devonian Botanic Garden, University of Alberta, Alberta T6G 2H7, Canada

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Fungal Cultures

Unidentified Entomophthorales sp.

Basidiobolus sp.

Unidentified Entomophthorales sp.

[Entomophthoromycotina: Entomophthorales]

- 7227 AE Hajek (03 NY 8-1-1). [Diptera: Tipulidae]. 13 Aug 2003. USA: Backyard, 205 Salem Drive, Ithaca, New York.
- 7228 AE Hajek (03 NY 8-1-2). [Diptera: Tipulidae]. 13 Aug 2003. USA: Backyard, 205 Salem Drive, Ithaca, New York.
- 7229 AE Hajek (03 NY 8-1-3). [Diptera: Tipulidae]. 13 Aug 2003. USA: Backyard, 205 Salem Drive, Ithaca, New York.
- 7230 AE Hajek (03 NY 8-1-4). [Diptera: Tipulidae]. 13 Aug 2003. USA: Backyard, 205 Salem Drive, Ithaca, New York.

Basidiobolus sp.

[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

- 270 RK Benjamin ← CW Emmons (2501). *Bufo marinus* (toad) dung. Rec'd Nov 1978. USA: NIH lab, Bethesda, Maryland.
- 271 RK Benjamin ← CW Emmons (2502) ← Lie-Kian Joe. Frog dung. Rec'd Nov 1978. Indonesia.
- 273 RK Benjamin ← CW Emmons (2507) ← Deshpande. *Homo sapiens* [Primates: Hominidae]. Rec'd Nov 1978. Location not specified.
- 2048 D TeStrake (TL-10). Lizard dung. Rec'd 25 Nov 1985. USA: Tampa, Florida.
- 2049 D TeStrake (TL-12). Lizard dung. Rec'd 25 Nov 1985. USA: Tampa, Florida.
- 2050 D TeStrake (TL-13). Lizard dung. Rec'd 25 Nov 1985. USA: Tampa, Florida.
- 2051 D TeStrake (TT-5). Toad dung. Rec'd 25 Nov 1985. USA: Tampa, Florida.
- 2052 D TeStrake (TT-9). Toad dung. Rec'd 25 Nov 1985. USA: Tampa, Florida.
- 3764 R Nelson. Soil. 1990. Barbados.
- 5336 RA Humber. Lizard dung. Rec'd Aug 1996. USA: Sonoran desert, Tuscon, Arizona.
- 9887 DA Henk (dah11DG1). *Dyscophus guineti* [Anura: Microhylidae] from dung of captive frog. Jul 2009. Switzerland.
- 9888 DA Henk (dah6DL1). *Dendrobates leucomelas* [Anura: Dendrobatidae] from dung of captive frog. Jul 2009. Switzerland.
- 9889 DA Henk (dah8TM1). *Triturus marmoratus* [Caudata: Salamandridae] from dung of captive salamander. Jul 2009. Switzerland.
- 9890 DA Henk (dahBR17). *Hylarana erythraea* [Anura: Ranidae] from dung. Jul 2009. Malaysia.
- 9891 DA Henk (dahBR2). *Hylarana labialis* [Anura: Ranidae] from dung. Jul 2009. Malaysia.
- 9892 DA Henk (dahBR4). *Hylarana glandulosa* [Anura: Ranidae] from dung. Jul 2009. Malaysia.

- 9893 DA Henk (dahBR5). *Hylarana labialis* [Anura: Ranidae] from dung. Jul 2009. Malaysia.

- 9894 DA Henk (dahCH1). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9895 DA Henk (dahCH10). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9896 DA Henk (dahCH4). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9897 DA Henk (dahOWT1). *Bufo bufo* [Anura: Bufonidae] from dung. Jul 2009. United Kingdom: London, England.

- 9898 DA Henk (dahOWT2). *Bufo bufo* [Anura: Bufonidae] from dung. Jul 2009. United Kingdom: London, England.

- 9899 DA Henk (dahOWT3). *Bufo bufo* [Anura: Bufonidae] from dung. Jul 2009. United Kingdom: London, England.

- 9900 DA Henk (dahSAR2A). *Discoglossus* sp. [Anura: Discoglossidae] from dung. Jul 2009. Italy: Sardinia.

- 9901 DA Henk (dahSAR3A). *Discoglossus* sp. [Anura: Discoglossidae] from dung. Jul 2009. Italy: Sardinia.

- 9902 DA Henk (dahSAR4A). *Discoglossus* sp. [Anura: Discoglossidae] from dung. Jul 2009. Italy: Sardinia.

- 9903 DA Henk (dahT14). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

- 9904 DA Henk (dahT53). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

- 9905 DA Henk (dahT90). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

- 9906 DA Henk (dahTF3). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9907 DA Henk (dahTF6). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9908 DA Henk (dahTF8). *Bufo bufo* [Anura: Bufonidae] from intestine. Jul 2009. United Kingdom: Cambridge, England.

- 9909 DA Henk (dahTPOO1). Tadpole, *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

- 9910 DA Henk (dahU22). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

- 9911 DA Henk (dahU71). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

9912 DA Henk (dahU84). *Alytes* sp. [Anura: Discoglossidae] from dung. Jul 2009. United Kingdom: London, England.

Basidiobolus haptosporus Drechsler

[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae. Synonym: *Basidiobolus meristosporus* Drechsler. *B. haptosporus* is a probable synonym of *B. ranarum*.

Caution: This species can cause human mycoses; most strains can be demonstrated to survive temperatures $\geq 37^{\circ}\text{C}$. Exercise caution to avoid inhalation of conidia or contact with cuts or abrasions.

261 [NRRL 1232; RSA 228] RK Benjamin ← CW Emmons. 4-year-old male, *Homo sapiens* [Primates: Hominidae]. Rec'd Nov 1978. Indonesia.

262 [RSA 964] RK Benjamin. Oak leaf mold. 10 May 1960. USA: Rancho Santa Ana Botanical Garden, Claremont, California.

263 [RSA 1269] RK Benjamin. Lizard dung. 4 Apr 1963. Mexico: La Suerte, Baja California.

264 [RSA 2252] RK Benjamin. Soil under Fremontodendron. Sep 1976. USA: Rancho Santa Ana Botanical Garden, Claremont, California.

272 RK Benjamin ← CW Emmons (2505) ← Lie-Kian-Joe. *Homo sapiens* [Primates: Hominidae]. Rec'd Nov 1978. Indonesia. Human mycosis.

1347 S Balazy (1580b). [Diptera: Brachycera] attached to decayed wood in a brook. 11 Aug 1983. Poland: Wielkopolski National Park.

8307 B Huang (L051203L2). 3 Dec 2005. USA: Cornell Plantations, Ithaca, New York.

8309 B Huang (L060407A2). 7 Apr 2006. USA: Bebee Lake, Ithaca, New York.

Basidiobolus haptosporus* var. *minor Srinivasan & Thirumalachar
[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

8331 [ATCC 16579; CBS 310.66; IMI 118287] MJ Thirumalachar. Rec'd 22 Nov 2007.

Basidiobolus heterosporus Srinivasan & Thirumalachar
[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

8332 [ATCC 16580] Acc'd 23 Feb 2007.

Basidiobolus magnus Drechsler

[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

8330 [ATCC 15379; CBS 205.64; NRRL 3734] C Drechsler. Rec'd 22 Nov 2006.

Basidiobolus meristosporus Drechsler
[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

8329 [ATCC 14450; NRRL 3733] C Drechsler. Acc'd 21 Feb 2007.

Basidiobolus microsporus RK Benjamin
[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae

265 [RSA 962] RK Benjamin. Lizard dung. 5 Apr 1960. USA: 5 mi NW of Agua Caliente Hot Springs, San Diego County, California.

267 [RSA 982] RK Benjamin. Duff under debris outside packrat nest. 23 May 1960. USA: 10 mi W of Barstow, Iron Mountain, California.

268 [RSA 1737] RK Benjamin. Lizard dung. 6 May 1962. USA: 10 mi S of Weldon, el. 3000 ft, Kern County, California.

269 [RSA 2088] RK Benjamin. Rodent dung. 29 Jul 1974. USA: nr. Cajon Pass, San Bernardino County, California.

Basidiobolus ranarum Eidam

[Entomophthoromycotina: Entomophthorales]

Basidiobolaceae. Possible synonyms: *Basidiobolus haptosporus* Drechsler, *Basiobolus meristosporus* Drechsler.

Caution: Strains of this species may be able to grow at temperatures $\geq 37^{\circ}\text{C}$ and may be regarded as potential mycotic agents for humans and other mammals. These strains should be safe in research and/or teaching laboratories with routine microbiological precautions; avoid inhalation of conidia or contact with open cuts or abrasions.

260 [RSA 334] RK Benjamin. Toad dung. 27 Apr 1954. USA: Rancho Santa Ana Botanical Garden, Claremont, California.

1139 M Shimazu (F-57). *Dendrolimus spectabilis* [Lepidoptera: Lasiocampidae]. Acc'd 3 Apr 1984. Japan: Saitama Prefecture.

2787 M Blackwell. Lizard dung. Acc'd 16 Aug 1989. USA: Baton Rouge, Louisiana.

5889 R Nelson (USF 50). Fecal pellet of frog *Eumeces inexpectatus*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.

5890 R Nelson (USF 56). Fecal pellet of frog *Cnemidophorus sexlineatus*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.

5891 R Nelson (USF 57). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.

5892 R Nelson (USF 70). Fecal pellet of frog *Scincella lateralis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.

5893 R Nelson (USF 71). Fecal pellet of frog *Scaphiopus holbrookii*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.

- 5894 R Nelson (USF 74). Fecal pellet of frog *Scincella lateralis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5895 R Nelson (USF 75). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5896 R Nelson (USF 76). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5897 R Nelson (USF 77). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5898 R Nelson (USF 78). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5899 R Nelson (USF 79). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5900 R Nelson (USF 80). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5901 R Nelson (USF 84). Fecal pellet of frog *Eumeces inexpectatus*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5902 R Nelson (USF 85). Fecal pellet of frog *Gastrophryne carolinensis*. Jul 1993. USA: University of South Florida Ecology Study Area, Tampa, Florida.
- 5903 R Nelson (USF 90). Isolated from soil sample. Aug 1993. USA: Tampa, Florida.
- 5904 R Nelson (USF SDI). Isolated from soil sample. Aug 1993. USA: University of South Florida Sundome, Tampa, Florida.
- 5905 R Nelson (USF SDII). Isolated from soil sample. Aug 1993. USA: University of South Florida Sundome, Tampa, Florida.
- 5906 R Nelson (USF 78MCZ-1). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5907 R Nelson (USF 78MCZ-2). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5908 R Nelson (USF 78MCZ-11). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5909 R Nelson (USF 78MCZ-15). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5910 R Nelson (USF 78MCZ-16). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5911 R Nelson (USF 78MCZ-18). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5912 R Nelson (USF 78MCZ-19). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5913 R Nelson (USF 78MCZ-20). Miconazole resistant single spore isolate from USF 78 [=ARSEF 5898]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5914 R Nelson (USF SD1MCZ-1). Miconazole resistant single spore isolate from USF SD1 [=ARSEF 5904]. Apr 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5915 R Nelson (USF 85Z1). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5916 R Nelson (USF 85Z2). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5917 R Nelson (USF 85Z3). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5918 R Nelson (USF 85Z4). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5919 R Nelson (USF 85Z5). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5920 R Nelson (USF 85Z6). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5921 R Nelson (USF 85Z11). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Sep 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5922 R Nelson (USF 85Z12). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5923 R Nelson (USF 85Z13). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5924 R Nelson (USF 85Z14). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.

- 5925 R Nelson (USF 85Z15). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5926 R Nelson (USF 85Z16). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5927 R Nelson (USF 85Z17). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5928 R Nelson (USF 85Z18). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5929 R Nelson (USF 85Z20). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5930 R Nelson (USF 85Z21). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5931 R Nelson (USF 85Z22). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5932 R Nelson (USF 85Z23). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5933 R Nelson (USF 85Z1Z1). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5934 R Nelson (USF 85Z1Z2). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5935 R Nelson (USF 85Z1Z3). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5936 R Nelson (USF 85Z1Z4). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5937 R Nelson (USF 85Z1Z5). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5938 R Nelson (USF 85Z1Z7). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5939 R Nelson (USF 85Z1Z8). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5940 R Nelson (USF 85Z1Z9). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5941 R Nelson (USF 85Z1Z10). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5942 R Nelson (USF 85Z1Z11). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5943 R Nelson (USF 85Z1Z12). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5944 R Nelson (USF 85Z1Z13). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5945 R Nelson (USF 85Z1Z14). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5946 R Nelson (USF 85Z1Z15). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5947 R Nelson (USF 85Z1Z16). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5948 R Nelson (USF 85Z1Z17). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5949 R Nelson (USF 85Z1Z19). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5950 R Nelson (USF 85Z19). Single zygospore culture from isolate USF 85 [=ARSEF 5902]. Jul 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 5951 R Nelson (USF 85Z1Z20). Single zygospore culture from isolate USF 85Z1 [=ARSEF 5915]. Nov 1996. USA: Laboratory manipulation, University of South Florida, Tampa, Florida.
- 6380 AA Callaghan (30) or (04 and 103). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England.

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- 6382 AA Callaghan (31) or (01 and 072). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Pasture, Staffordshire, Keele, England.
- 8308 B Huang (L060401C1). 1 Apr 2006. USA: near Maplewood Park, Ithaca, New York.
- 8328 [ATCC 14449] C Drechsler. Isolated from decaying plant residues. Acc'd 21 Feb 2007.

Batkoia sp.

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 3131 K Hural (GF-3). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. Oct 1990. USA: Game Farm Rd., Ithaca, New York.
- 5810 RA Humber. [Coleoptera: Cantharidae]. 9 Aug 1998. Denmark.
- 6179 BJ Hicks (3). Larva, *Panolis flammea* [Lepidoptera: Noctuidae]. Jul 1998. United Kingdom: Dallas Forest, Moray District, Scotland.
- 6210 Rec'd 2 Jul 1999.
- 7370 AE Hajek (04 NY 9-1-1). Larva, *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 29 May 2004. USA: Saint Lawrence County, New York.

Batkoia apiculata (Thaxter) Humber

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. The nuclei of this taxon stain well and have granular contents when mounted in aceto-orcein or other nuclear stains. This fungus has a morphologically similar aencylistaceous fungus, *Conidiobolus pseudapiculatus* (q.v.), whose nuclei do not stain well and do not have granular contents.

- 67 [IPLB 602] G Remaudière. *Myzus ascalonicus* [Homoptera: Aphididae]. 13 May 1975. France.
- 129 N Wilding (10). *Myzus persicae* [Homoptera: Aphididae] on potato. 11 Aug 1976. USA: Rogers Farm, Stillwater, Maine.
- 174 FR Holbrook. *Macrosiphum euphorbiae* [Homoptera: Aphididae] on potato. 7 Jul 1977. USA: Rogers Farm, Stillwater, Maine.
- 395 S Keller (35). Larva, [Hymenoptera]. 10 Aug 1976. Switzerland.
- 839 CSIRO (EM629) ← G Lutton. *Acyrthosiphon kondoi* [Homoptera: Aphididae] on lucerne "condura". 17 Jun 1981. Australia: nr. Cooma, Umerella Station, New South Wales.
- 919 [ARSEF 1661] S Keller (450). [Diptera: Sciaridae]. Nov 1982. Switzerland: Zürich.
- 927 [ARSEF 1660] S Keller (449). [Diptera: Sciaridae]. Nov 1982. Switzerland: Zürich.
- 1146 M Shimazu (F-382). *Brevicoryne brassicae* [Homoptera: Aphididae]. Acc'd 4 Apr 1984. Japan: Shizuoka Prefecture.
- 1660 [ARSEF 927] S Keller (449). [Diptera: Sciaridae]. Nov 1982. Switzerland: Zürich.

- 1661 [ARSEF 919] S Keller (450). [Diptera: Sciaridae]. Nov 1982. Switzerland: Zürich.
- 2504 J Eilenberg (KVL 29). *Acyrthosiphon pisum* [Homoptera: Aphididae]. Apr 1987. Denmark: Karlebo, Zealand.
- 3080 SP Wright. *Rhopalosiphum padi* [Homoptera: Aphididae]. 22 Jun 1990. USA: irrigated wheat field, Piedmont Organic Produce Farm, Wellington, Colorado.
- 3088 MG Feng (MTRM9001). *Rhopalosiphum maidis* [Homoptera: Aphididae] on late-sown spring grain crop. 31 Jul 1990. USA: Bozeman, Montana.
- 3091 MG Feng (MTRM9004). *Rhopalosiphum maidis* [Homoptera: Aphididae] on late-sown spring grain crop. 7 Aug 1990. USA: Bozeman, Montana.
- 3136 K Hural (Hoff-1). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 3140 K Hural (Hoff-5). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 3225 P Folker-Hansen (F and 040590). *Bradyzia paupera* [Diptera: Sciaridae]. 4 May 1990. Denmark.
- 3226 P Folker-Hansen (I and 080990). *Bradyzia paupera* [Diptera: Sciaridae]. 8 Sep 1990. Denmark.
- 5552 KT Hodge. Adult, [Homoptera: Cicadellidae]. 17 Sep 1997. McLean: Eames' Bog.
- 5994 C Nielsen (KVL 98-17). Alate, *Rhopalosiphum padi* [Homoptera: Aphididae] on *Prunus padus*. 25 Sep 1998. Denmark: Copenhagen, Zealand.

Batkoia gigantea (S Keller) Humber

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 214 S Keller (74). *Tipula paludosa* [Diptera: Tipulidae]. Rec'd Spring 1978. Switzerland.
- 215 S Keller (75). *Tipula paludosa* [Diptera: Tipulidae]. Rec'd Spring 1978. Switzerland.
- 403 [FPMI 768] S Keller (36). *Tipula paludosa* [Diptera: Tipulidae]. 8 Sep 1976. Switzerland.

Batkoia major (Thaxter) Humber

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 1427 RS Soper (84528-1). [Homoptera: Aphididae]. 28 May 1984. Yugoslavia: plum orchard, Zemun, Belgrade.
- 2936 H Firstencel. *Empoasca fabae* [Homoptera: Cicadellidae]. 5 Jan 1990. USA: laboratory colony, Ithaca, New York.
- 3102 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 13 Sep 1990. USA: Hoffman field # 6G, Catherine, New York.
- 3103 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 4 Sep 1990. USA: laboratory colony, Ithaca, New York.

Batkoia papillata(?) (Thaxter) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

7068 MM White (NF-7-W3a). [Diptera: Simuliidae]. Rec'd 16 Oct 2002. Canada: Newfoundland.

***Conidiobolus* sp.**

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae. These strains include a heterogeneous assortment of fungi isolated as saprobes and as zoopathogens. Some may represent undescribed new species. Identifications of *Conidiobolus* species are made difficult by the relative lack of taxonomic characters and of any modern taxonomic attention.

Caution: Strains derived from mammalian mycoses should be treated as potentially hazardous; observe handling precautions noted for *Conidiobolus coronatus*.

- 80 RG Kenneth (3081) or (C.o. 15) ← A Uziel. Larva, *Hypera variabilis* [Coleoptera: Curculionidae]. Mar 1976. Israel: alfalfa field, Sedé Eliyahu.
- 81 RG Kenneth (3082) or (C.o. 10) ← A Uziel. Larva, *Hypera variabilis* [Coleoptera: Curculionidae]. Mar 1976. Israel: Sedé Eliyahu.
- 92 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 7 Jul 1976. USA: west side, 2nd Musquacook Lake, Musquacook, Maine.
- 93 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 7 Jul 1976. USA: west side, 2nd Musquacook Lake, Musquacook, Maine.
- 94 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 7 Jul 1976. USA: west side, 2nd Musquacook Lake, Musquacook, Maine.
- 147 JD Vandenberg. Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 26 Jun 1977. USA: Carroll, Maine.
- 148 JD Vandenberg. Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 20 Jun 1977. USA: forest, Maine.
- 211 DW Roberts. *Nilaparvata lugens* [Homoptera: Delphacidae]. 27 Mar 1978. India: insectary, Hyderabad, Andhra Pradesh.
- 391 S Keller (21). [Homoptera: Cercopidae]. Rec'd 18 Oct 1979. Switzerland.
- 517 DW Roberts (82380-19). *Nilaparvata lugens* [Homoptera: Delphacidae]. 23 Aug 1980. Malaysia: Bumbong Lima, Icepala Batas, Wellesley Province.
- 522 DW Roberts (82180-7b). *Nilaparvata lugens* [Homoptera: Delphacidae] on leaves. 21 Aug 1980. Malaysia.
- 564 RS Soper (8133-1/BPH-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.

- 595 RS Soper (81227-2). *Nilaparvata lugens* [Homoptera: Delphacidae]. 27 Feb 1981. Indonesia: Bantul District, Yogyakarta, Java.
- 596 RS Soper (81226-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 26 Feb 1981. Indonesia: Bantul District, Yogyakarta, Java.
- 604 RS Soper (8133-2). *Sogatella furcifera* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: Pangkep Kaba, Sulawesi Selatan, Celebes.
- 605 RS Soper (8133-1). *Nephrotettix bipunctata cincticeps* [Homoptera: Cicadellidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.
- 606 RS Soper (8133-1). *Nephrotettix bipunctata cincticeps* [Homoptera: Cicadellidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.
- 999 J Aoki (Ent. 45) ← T Kobayashi. [Homoptera: Aphididae]. Jun 1981. Japan: Fuchu, Tokyo Prefecture.
- 1426 RS Soper (8465-1). [Homoptera: Aphididae] on rose. 6 May 1984. Yugoslavia: Plant Protection Institute, Belgrade.
- 1444 M Smith (L05 and 001). Soil/plant detritus. 1984. United Kingdom: marshy area by pool, U. of Keele, Staffordshire, England.
- 1445 M Smith (K13 and 004). Soil/plant detritus. 1984. United Kingdom: turf behind Keele Hall, U. of Keele, Staffordshire, England.
- 1477 [CNPAF 84-04-25-2; CP 167] SM dos Santos. [Orthoptera: Tettigonidae]. 25 Apr 1984. Brazil: CN-PAF, Goiânia, Goiás.
- 1485 M Smith (N01 and 141). Soil/plant detritus. 1984. United Kingdom: grazed pasture behind Keele Hall, U. of Keele, Staffordshire, England.
- 1486 M Smith (O08 and 017). Soil/plant detritus. 1984. United Kingdom: wheat field, U. of Keele, Staffordshire, England.
- 1487 M Smith (Q01 and 119). Soil/plant detritus. 1984. United Kingdom: grazed pasture behind Keele Hall, U. of Keele, Staffordshire, England.
- 1488 M Smith (I01 and 020). Soil/plant detritus. 1984. United Kingdom: grazed pasture behind Keele Hall, U. of Keele, Staffordshire, England.
- 1672 GO Poinar ← GM Thomas. *Porcellio* sp. [Isopoda: Oniscoidea]. 5 Jun 1984. USA: California.
- 1967 T Burger. *Schizaphis graminum* [Homoptera: Aphididae]. Aug 1985. USA: laboratory colony, APHIS-PPQ, Niles, Michigan.
- 2130 IL Sivcev (160/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 2 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2147 MA Naves. *Deois* sp. [Homoptera: Cercopidae]. 4 Mar 1986. Brazil: Mato Grosso.
- 2148 MA Naves. *Deois flavopicta* [Homoptera: Cercopidae]. 21 Mar 1986. Brazil: Mato Grosso.

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Conidiobolus sp.
Conidiobolus adiaeetus

- 2193 [CNPAF 86-5-19; CP 203] SM dos Santos. [Hymenoptera]. 19 May 1986. Brazil: CNPAF, Goiânia, Goiás.
- 2494 J Eilenberg (KVL 15). [Diptera: Anthomyiidae]. 25 Jul 1986. Denmark: Svanholm, Malmöhüs.
- 2498 J Eilenberg (KVL 25). *Ptychoptera contaminata* [Diptera: Ptychopteridae]. 25 Aug 1986. Denmark: Kattinge Vig, Roskilde.
- 2672 J Eilenberg (KVL 49). *Delia radicum* [Diptera: Anthomyiidae]. 2 Aug 1988. Denmark: Roskilde, Zealand.
- 2771 GW Riethmacher (C3). *Plutella xylostella* [Lepidoptera: Plutellidae]. 11 Apr 1989. Philippines: La Trinidad, Benguet.
- 2772 GW Riethmacher (C4). *Plutella xylostella* [Lepidoptera: Plutellidae]. 14 Apr 1989. Philippines: La Trinidad, Benguet.
- 2815 GW Riethmacher (C5). *Plutella xylostella* [Lepidoptera: Plutellidae]. 14 Apr 1989. Philippines: La Trinidad, Benguet.
- 2816 GW Riethmacher (C6). *Plutella xylostella* [Lepidoptera: Plutellidae]. 9 Jun 1989. Philippines: La Trinidad, Benguet.
- 2819 SR Sánchez Peña (4-2). Adult:queen, *Solenopsis invicta* [Hymenoptera: Formicidae] soil. 5 Aug 1989. USA: College Station, Texas.
- 2924 CDC (B-4742). Nasal granulomata of sheep. Rec'd 13 Dec 1989. Australia.
- 2925 CDC (B-4741). Nasal granulomata of sheep. Rec'd 13 Dec 1989. Australia.
- 2926 CDC (B-4743). Nasal granulomata of sheep. Rec'd 13 Dec 1989. Australia.
- 2927 CDC (B-4744). Nasal granulomata of sheep. Rec'd 13 Dec 1989. Australia.
- 2928 [UTMB 3109] L Pasarell. *Homo sapiens* [Primates: Hominidae]. Rec'd 18 Sep 1989. USA: Port Arthur, Texas.
- 3208 GW Riethmacher (C4.1a). *Plutella xylostella* [Lepidoptera: Plutellidae]. 16 Oct 1990. Philippines: La Trinidad, Benguet.
- 3383 I Majchrowicz (18). *Aphis fabae* [Homoptera: Aphididae] on bean. 27 Jun 1991. USA: Grandpa's garden, Granger, Washington.
- 3384 I Majchrowicz (25-b). *Myzus persicae* [Homoptera: Aphididae] on potato. 11 Jul 1991. USA: Orchard Farm, Yakima, Washington.
- 3402 MS Goettel (17) ← G Pohl and D Yu. 30 Sep 1991. Canada: Agriculture Canada Research Station, Lethbridge, Alberta.
- 3406 BJ Cochrane ← K Chernov (V). Soil. Rec'd 7 Oct 1991. USA: mowed USF grounds by UPD, Tampa, Florida.
- 3407 BJ Cochrane ← K Chernov (VI). Soil. Rec'd 7 Oct 1991. USA: mowed USF grounds by UPD, Tampa, Florida.
- 3409 BJ Cochrane ← K Chernov (Ruby Mine). Soil. Rec'd 7 Oct 1991. USA: exposed mountainside, Franklin, North Carolina.
- 3763 R Nelson. Jun 1992. Costa Rica.
- 5404 BL Parker (GA-113). *Gargara* sp. [Homoptera: Membracidae] on wild cereal. Jun 1996. USA: Burlington, Vermont.
- 5405 BL Parker (GA-169). *Gargara* sp. [Homoptera: Membracidae] on wild cereal. 17 Aug 1996. Canada: Philipsburg, Québec.
- 5406 BL Parker (GA-169A). *Gargara* sp. [Homoptera: Membracidae] on wild cereal. 17 Aug 1996. Canada: Philipsburg, Québec.
- 5712 RA Humber. From forest litter. 2 May 1998. Republic of Korea: Kangwon National University Forest Plantation, Chuncheon, Kangwon-do.
- 6424 MK Er. 3rd instar larva, *Tipula paludosa* [Diptera: Tipulidae]. 18 Dec 1999. United Kingdom: Grassland for recreation, Northumberland, England.
- 6505 S Gouli and V Gouli (GA-348). From soil. May 1999. USA: Guilford, Vermont.
- 6659 JL Hatting. *Eriosoma lanigerum* [Homoptera: Aphydidae] feeding underground on apple tree roots. 24 Jul 2000. South Africa: Oak Valley, Western Cape, Cape Province.
- 7216 [SRCAMB B-157] V Likhovidov ← BA Borisov. Rec'd 29 Sep 2003.
- 7786 [CEP 184] C López Lastra ← A Toledo. Adult, male, *Oliarus dimidiatus* [Homoptera: Cixiidae] on *Oryza sativa* L., rice crop. 28 Mar 2005. Argentina: Estación experimental Julio Hirschhorn, Los Hornos, Buenos Aires.
- 7942 B Huang (B1). Leaf litter. Nov 2005. USA: Cornell Plantations, Mundy Wildflower Garden, Ithaca, New York.
- 8313 B Huang (GSM3-L-1C1). 7 Oct 2006. USA: Great Smoky Mountains National Park, Tennessee.
- 8314 B Huang (GSM3-L-1C2). Acc'd 26 Jan 2007. USA: Great Smoky Mountains National Park, Tennessee.
- 8429 B Huang (M051114A3). 14 Nov 2005. USA: Cornell Plantations, Ithaca, New York.

Conidiobolus adiaeetus Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 451 [CBS 136.57; DS King C-23] ATCC (12589) ← C Drechsler. Plant detritus. Acc'd 28 Apr 1980. USA: Maryland. CULTURE EX TYPE.
- 6377 AA Callaghan (62) or (04 and 041). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England.
- 8320 B Huang (3-litter-1 A). 7 Oct 2006. USA: Great Smoky Mountains National Park, Tennessee.

8427 B Huang (M051114A1). Moss. 14 Nov 2005. USA: Cornell Plantations, Ithaca, New York.

Conidiobolus antarcticus Tosi, Caretta & Humber
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae. Mycotaxon 90: 343-347 (2004)

6913 G Caretta and S Tosi. 2 Feb 1999. Antarctica: Kohler Head, Victoria Land. Culture EX TYPE.

Conidiobolus bangalorensis Srinivasan & Thirumalachar
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

449 [HACC 190; IMI 118284; NRRL 3682] ATCC (16576)
← MC Srinivasan and MJ Thirumalachar. Plant detritus. 1966. India: Bangalore, Karnataka. CULTURE EX TYPE.

Conidiobolus brefeldianus Couch
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

452 ATCC (28847) ← DS King (C-31) ← CBS (141.39)
← JN Couch. Acc'd 28 Apr 1980. USA: North Carolina. CULTURE EX TYPE.

Conidiobolus coronatus (Costantin) Batko
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae. Major synonyms: *Entomophthora coronata* (Costantin) Kevorkian, *Conidiobolus villosus* Martin.

Caution: This species is known to cause human mycoses that are primarily tropical in occurrence and confined to the nasal passages and adjacent superficial areas. Avoid inhalation of conidia and do not handle cultures without gloves if unhealed cuts or abrasions are present. This species has low pathogenicity for mammals and should be relatively safe if handled with good microbiological technique.

205 ATCC (28691) ← DS King (75). Plant detritus. Rec'd 9 Mar 1978. USA.

206 [IPLB 951.72] ATCC (32867) ← F Mariat. *Homo sapiens* [Primates: Hominidae]. Rec'd 9 Mar 1978. Nigeria.

274 BE Tucker (171). Soil from roots under *Helosis* sp. [Balanophoraceae]. Acc'd 27 Mar 1979. Costa Rica: 9.783°N lat, 83.999°W long, elev. 1950 ft, Casa Mata.

349 RS Soper. *Nilaparvata lugens* [Homoptera: Delphacidae]. 16 Feb 1979. Australia: Cairns, Queensland.

405 DW Roberts. *Nilaparvata lugens* [Homoptera: Delphacidae]. Nov 1979. Philippines: IRRI greenhouse, Lecheria, Calamba, Laguna.

406 DW Roberts. *Nilaparvata lugens* [Homoptera: Delphacidae]. Nov 1979. Philippines: IRRI greenhouse, Parian, Calamba, Laguna.

418 DW Roberts (A). *Nilaparvata lugens* [Homoptera: Delphacidae]. Nov 1979. Philippines: IRRI greenhouse, Lecheria, Calamba, Laguna.

419 DW Roberts (B). [Homoptera: Cicadellidae]. Nov 1979. Philippines: IRRI greenhouse, Lecheria, Calamba, Laguna.

421 DW Roberts (E). [Homoptera: Cicadellidae]. Nov 1979. Philippines: IRRI greenhouse, Parian, Calamba, Laguna.

422 DW Roberts (F). [Homoptera: Cicadellidae]. Nov 1979. Philippines: IRRI greenhouse, Lecheria, Calamba, Laguna.

471 [DAR 30604] J Walker. Casing soil of *Agaricus brunneescens* [Hymenomycetes: Agaricales]. Apr 1978. Australia: R.D. 67, nr. Rydalmer, McGrath's Hill, New South Wales.

511 DW Roberts (81380-4). *Nilaparvata lugens* [Homoptera: Delphacidae]. 13 Aug 1980. Philippines: IRRI, Los Baños, Manila.

512 DW Roberts (82180-4a). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Aug 1980. Malaysia.

514 DW Roberts (82180-7c). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Aug 1980. Malaysia.

520 DW Roberts (82380-20). *Nephrotettix bipunctata cincticeps* [Homoptera: Cicadellidae]. 23 Aug 1980. Malaysia: cages, Bumbong Lima, Icepala Batas, Wellesley Province.

523 DW Roberts (82380-22). *Nilaparvata lugens* [Homoptera: Delphacidae]. 23 Aug 1980. Malaysia: cages, Bumbong Lima, Icepala Batas, Wellesley Province.

524 DW Roberts (82180-4c). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Aug 1980. Malaysia.

525 DW Roberts (82880-11). *Nilaparvata lugens* [Homoptera: Delphacidae]. 28 Aug 1980. Thailand: rearing cage, Chainat Rice Exp. Sta., N of Bangkok, Khlong Luang.

528 DW Roberts (82980-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 28 Aug 1980. Thailand: NBRC cages.

563 RS Soper (8133-1/BPH-2). *Nilaparvata lugens* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.

565 RS Soper (8133-1/BPH-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.

567 RS Soper (81224-2). [Araneida]. 24 Feb 1981. Indonesia: Diski Village, Medan District, Sumatera Utara.

597 RS Soper (8133-1). *Nephrotettix bipunctata cincticeps* [Homoptera: Cicadellidae]. 3 Mar 1981. Indonesia: insect rearings, Maros Research Center, Maros, Sulawesi Selatan, Celebes.

- 655 DW Roberts (102381-6). *Nilaparvata lugens* [Homoptera: Delphacidae]. 23 Oct 1981. PR China: Guanzhou, Kwon Tung.
- 997 J Aoki (Ent. 11) ← M Shimazu. *Nilaparvata lugens* [Homoptera: Delphacidae]. Jul 1976. Japan: Chikugo, Fukuoka Prefecture.
- 1147 LI Rivera-Vargas. *Volvariella volvacea* [Agaricales]. 1984. USA: Mayaguez, Puerto Rico.
- 1572 S Keller (490). *Ceutorhynchus napi* [Coleoptera: Curculionidae]. 14 Jun 1984. Switzerland.
- 1573 S Keller (491). *Ceutorhynchus napi* [Coleoptera: Curculionidae]. 14 Jun 1984. Switzerland.
- 1574 S Keller (493). *Ceutorhynchus napi* [Coleoptera: Curculionidae]. 14 Jun 1984. Switzerland.
- 1575 S Keller (494). *Ceutorhynchus napi* [Coleoptera: Curculionidae]. 14 Jun 1984. Switzerland.
- 1736 N Wilding (4). *Myzus persicae* [Homoptera: Aphididae] isolate (Wilding # 3) passed through *Galleria mellonella* [Lepidoptera: Pyralidae] larva. Feb 1969. Laboratory manipulation.
- 1737 N Wilding (5). *Myzus persicae* [Homoptera: Aphididae] isolate (Wilding # 3) passed through *Galleria mellonella* [Lepidoptera: Pyralidae] larva. Feb 1969. Laboratory manipulation.
- 1738 [ARSEF 96 (lost)] N Wilding (32) ← C Dedryver. *Acyrthosiphon pisum* [Homoptera: Aphididae]. 3 Sep 1984. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 1876 DG Holdom (2). *Nilaparvata lugens* [Homoptera: Delphacidae]. 8 Mar 1985. Indonesia: Cikampek, Jawa Barat, Java.
- 1884 [CP 173] DW Roberts ← J Brunes. *Mocis latipes* [Lepidoptera: Noctuidae]. 31 Jan 1985. Brazil: CNPAF, Goiânia, Goiás.
- 2715 J Newton ← M Masri. Male, *Equus ferus caballus* [Perissodactyla: Equidae]. Mar 1989. USA: Baton Rouge, Louisiana.
- 2730 GW Riethmacher (C1). *Plutella xylostella* [Lepidoptera: Plutellidae]. 6 Apr 1989. Philippines: La Trinidad, Benguet.
- 2812 MG Feng (MD8904). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2813 MG Feng (MD8905). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2814 MG Feng (MD8906). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 3087 M Wheeler ← RP Korf. [Dacrymycetales]. 12 Sep 1990. USA: Lloyd/Cornell-Ringwood Nat. Pres., Ithaca, New York.
- 3099 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 20 Sep 1990. USA: Hoffman field # 4B, Catherine, New York.
- 3109 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 25 Sep 1990. USA: Hoffman field # 4E, Catherine, New York.
- 3222 LS Osborne. *Frankliniella occidentalis* [Thysanoptera: Thripidae]. Rec'd 14 Mar 1991. USA: greenhouse, IFAS, Univ. of Florida, Apopka, Florida.
- 3379 K Ostrovska (4) ← PG Lawlor. *Lutzomyia* sp. [Diptera: Psychodidae]. Jul 1991. Guatemala: Tical, Petén.
- 3414 K Ostrovska (21) ← MV Herrero. Female, *Lutzomyia sordelli* [Diptera: Psychodidae]. 22 Sep 1991. Costa Rica: Santa Rosa National Park, Guanacaste.
- 3415 K Ostrovska (22) ← MV Herrero. Female, *Lutzomyia sordelli* [Diptera: Psychodidae]. 22 Sep 1991. Costa Rica: Santa Rosa National Park, Guanacaste.
- 4797 [INIA 2193] J Eilenberg (KVL 614). *Epinotia aporema* [Lepidoptera: Tortricidae]. 4 May 1994. Uruguay.
- 5162 S Gouli (GP-69). Larva, Phylum Arthropoda, Class Insecta. 24 May 1995. USA: R. Angellillo's sugar maple stand, North Field, Vermont.
- 6379 AA Callaghan (45) or (04 and 012). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England.
- 6512 S Gouli and V Gouli (GA-361). [Thysanoptera: Thripidae] on *Tagetes erecta* L., marigold. 3 Oct 1999. USA: Burlington, Vermont.
- 7010 M Greif (EIAW 369). [Araneida]. 24 Aug 2001. Canada: Amisk Lake trail, Elk Island National Park, Alberta.
- 7011 M Greif (EIAW 389). [Hymenoptera: Formicidae]. 31 Aug 2001. Canada: Amisk Lake trail, Elk Island National Park, Alberta.
- 7012 M Greif (EIAW 400). [Opiliones:Palpatores]. 31 Aug 2001. Canada: Amisk Lake trail, Elk Island National Park, Alberta.
- 7013 M Greif (EIAW 410). [Opiliones:Palpatores]. 11 Sep 2001. Canada: Amisk Lake trail, Elk Island National Park, Alberta.
- 7203 [CEP 062] C López Lastra. *Delphacodes haywardii* [Homoptera: Delphacidae] reared on *Hordeum vulgare* L., barley. 19 Aug 2003. Argentina: greenhouse at CEPAVE, La Plata, Buenos Aires.
- 7922 KT Hodge. Isolated from unidentified mushroom growing on horse dung. 26 Sep 2005. USA: Barn, Pine Tree Road, Ithaca, New York.
- 8023 EC Bernard (CRSM). [Collembola] isolated from live soil arthropod extraction baited with yeast pellets. 3 Apr 2006. USA: Great Smoky Mountains National Park, Enloe Cemetery, Swain County, North Carolina.
- 8455 RB Rosengaus. Reproductives, *Nasutitermes corniger* [Isoptera: Termitidae] from multiple founding association. Rec'd 24 May 2007.

- 8715 [AFTOL 137; NRRL 28638] Rec'd 23 Jun 2008.
9295 [ERL 1600] VS Gouli (Thr-08-E1). Isolated from soil sample. 2008. USA: Vermont.
9296 [ERL 1601] VS Gouli (Thr-08-E2). Isolated from soil sample. 2008. USA: Vermont.
9913 [ERL 1746] S Gouli (Thr.-09-1) and V Gouli. 2010. USA: Vermont.
9914 [ERL 1747] S Gouli and V Gouli (Thr.-09-2). [Thysanoptera: Thripidae]. 2010. USA: Vermont.
9940 C Pérez Martínez (Lyco 1). *Lycoriella ingenua* [Diptera: Sciaridae]. Feb 2005. Mexico: Hongos Rioxal, S.A., Veracruz.
9941 C Pérez Martínez (Lyco 4). *Lycoriella ingenua* [Diptera: Sciaridae]. Feb 2005. Mexico: Hongos Rioxal, S.A., Veracruz.
9942 C Pérez Martínez (Lyco 5). *Lycoriella ingenua* [Diptera: Sciaridae]. Feb 2005. Mexico: Hongos Rioxal, S.A., Veracruz.

Conidiobolus firmipilleus Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 2731 GW Riethmacher (C2). *Plutella xylostella* [Lepidoptera: Plutellidae]. 8 Apr 1989. Philippines: La Trinidad, Benguet.
6384 AA Callaghan (53) or (08 and 026). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Arable field, Staffordshire, Keele, England.

Conidiobolus heterosporus Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 6386 AA Callaghan (04 and 036). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England.

Conidiobolus iuxtagenitus Waters & Callaghan
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 6378 [ATCC 76115] AA Callaghan (55) or (04 and 023). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England. CULTURE EX TYPE.
7944 B Huang (L051115B8). Leaf litter. Nov 2005. USA: Cornell Plantations, Mundy Wildflower Garden, Ithaca, New York.

Conidiobolus lampraugei Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 2338 CC Brown. 15 yr. old Arabian m, *Equus ferus caballus* [Perissodactyla: Equidae]. Dec 1986. USA: Baton Rouge, Louisiana.

- 6361 G St-Germain (LSPQ 0467). Rec'd 24 Nov 1999. West Indies: Trinidad and Tobago.
6385 AA Callaghan (08 and 229). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Arable field, Staffordshire, Keele, England.

Conidiobolus megalotocus Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae

- 8428 B Huang (S051114A2). Isolated from soil sample. 14 Nov 2005. USA: Cornell Plantations, Ithaca, New York.

Conidiobolus nr. coronatus (Costantin) Batko
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae. These strains produce secondary microconidia; their morphologies match the description of *C. coronatus* in every way except that no villose conidia have been observed. Positive identification as *C. coronatus* requires observation of villose conidia.

Caution: All precautions about handling *C. coronatus* should be observed with these strains.

- 598 RS Soper (8135). *Nilaparvata lugens* [Homoptera: Delphacidae]. 5 Mar 1981. Indonesia: greenhouse, Bogor, Jawa Barat, Java.
599 RS Soper (81227-4). *Nilaparvata lugens* [Homoptera: Delphacidae]. 27 Feb 1981. Indonesia: Ngaglik Village, Sleman District, Yogyakarta, Java.
600 RS Soper (81227-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 27 Feb 1981. Indonesia: Pendo Wo Har Djo, Sleman District, Yogyakarta, Java.
602 RS Soper (8133-2). *Sogatella furcifera* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: Pangkep Kaba, Sulawesi Selatan, Celebes.
1742 DW Roberts (26102a) and MC Rombach. *Nilaparvata lugens* [Homoptera: Delphacidae]. 26 Oct 1984. India: greenhouse, All India Coop. Rice Inv. Project, Hyderabad, Andhra Pradesh.
1743 DW Roberts (26104) and MC Rombach. *Nilaparvata lugens* [Homoptera: Delphacidae]. 26 Oct 1984. India: greenhouse, All India Coop. Rice Inv. Project, Hyderabad, Andhra Pradesh.

Conidiobolus obscurus (Hall & Dunn) Remaudière & S Keller
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae. Major synonym: *Entomophthora thaxteriana*

- 74 RG Kenneth (3043) ← ATCC (24418) and CBS (182.60) ← I Hall. *Theroaphis maculata* [Homoptera: Aphididae] on *Medicago sativa*. Dec 1954. USA: Lakeview, California. Culture presumably EX TYPE.
97 [CSIRO EM529] N Wilding (6) ← C Dedryver. *Metopolophium dirhodum* [Homoptera: Aphididae]. Acc'd 20 Nov 1978. France: nr. Rennes, Le Rhei, Ille-et-Vilaine.

- 121 [IPLB 20] JP Latgé and G Remaudière. *Uroleucon* sp. [Homoptera: Aphididae] on *Solidago* sp. [Asteraceae]. 25 Aug 1976. Canada: Chute aux Galets, Québec.
- 122 [IPLB 21] JP Latgé and G Remaudière. *Uroleucon* sp. [Homoptera: Aphididae] on *Solidago* sp. [Asteraceae]. 25 Aug 1976. Canada: Chute aux Galets, Québec.
- 124 [IPLB 54] JP Latgé and G Remaudière. *Aphis* sp. [Homoptera: Aphididae] on *Cornus* sp. [Cornaceae]. 26 Aug 1976. Canada: Saint-Gédéon, Québec.
- 133 [ARSEF 355; CSIRO EM543; IPLB 542] G Remaudière ← JP Latgé. *Aphis armata* [Homoptera: Aphididae] on *Digitalis purpurea*. 26 Jul 1974. France: Le Rosskopf, Moselle.
- 182 FR Holbrook. *Macrosiphum euphorbiae* [Homoptera: Aphididae]. 10 Aug 1977. USA: Maine.
- 243 I Majchrowicz. [Homoptera: ?Aphididae]. Rec'd 6 Sep 1978. Poland: Szczecin.
- 354 [ARSEF 824; CSIRO EM535] RJ Milner. *Acyrtosiphon kondoi* [Homoptera: Aphididae]. May 1978. Australia: Glen Innes, New South Wales.
- 355 [ARSEF 133; IPLB 542] CSIRO (EM543) ← JP Latgé. *Aphis armata* [Homoptera: Aphididae] on *Digitalis purpurea*. 26 Jul 1974. France: Le Rosskopf, Moselle.
- 434 [FPMI 667] JP Latgé ← IPLB (542 (=ARSEFs 133 & 355)) or (722). [Homoptera: Aphididae]. Rec'd 7 Mar 1980. France.
- 824 [ARSEF 354; CSIRO EM535] RJ Milner. *Acyrtosiphon kondoi* [Homoptera: Aphididae]. May 1978. Australia: Glen Innes, New South Wales.
- 832 CSIRO (EM566) ← PJ Cameron. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 25 May 1979. Laboratory manipulation.
- 834 CSIRO (EM591) ← D Crawford. *Acyrtosiphon pisum* [Homoptera: Aphididae] on lucerne. 25 Jun 1980. Australia: Riverina Agricultural College, Wagga Wagga, New South Wales.
- 1131 [J Aoki Ent. 9; ARSEF 995 (deaccessioned)] M Shimazu (F-25). *Rhopalosiphum padi* [Homoptera: Aphididae]. Apr 1976. Japan: Chikugo, Fukuoka Prefecture.
- 1741 N Wilding (90). *Acyrtosiphon pisum* [Homoptera: Aphididae]. Jan 1979. Laboratory manipulation.
- 3089 MG Feng (MTRM9002). *Rhopalosiphum maidis* [Homoptera: Aphididae] on late-sown spring grain crop. 31 Jul 1990. USA: Bozeman, Montana.
- 3090 MG Feng (MTRM9003). *Rhopalosiphum maidis* [Homoptera: Aphididae] on late-sown spring grain crop. 31 Jul 1990. USA: Bozeman, Montana.
- 3092 MG Feng (MTMD9002). *Metopolophium dirhodum* [Homoptera: Aphididae] on late-sown spring grain crop. 17 Aug 1990. USA: Bozeman, Montana.
- 3132 K Hural (GF-4). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. Oct 1990. USA: Game Farm Rd., Ithaca, New York.
- 3133 K Hural (GF-5). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. Oct 1990. USA: Game Farm Rd., Ithaca, New York.
- 3134 K Hural (GF-6). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. Oct 1990. USA: Game Farm Rd., Ithaca, New York.
- 3135 K Hural (GF-7). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. Oct 1990. USA: Game Farm Rd., Ithaca, New York.
- 3137 K Hural (Hoff-2). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 3138 K Hural (Hoff-3). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 3139 K Hural (Hoff-4). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 3141 K Hural (Hoff-6). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Oct 1990. USA: Hoffman field, Catherine, New York.
- 5992 C Nielsen (KVL 98-13). Alate, *Rhopalosiphum padi* [Homoptera: Aphididae] on *Prunus padus*. 25 Sep 1998. Denmark: Copenhagen, Zealand.
- 7217 [SRCAMB G-161] V Likhovidov. Rec'd 29 Sep 2003.
- 9536 [SRCAMB VL-1704; VIZR 47] V Likhovidov. Rec'd 14 Aug 2008. Field Collection Number F-154.
- Conidiobolus osmodes** Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae
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- 79 [FPMI 695] RG Kenneth (3080) or (3) ← A Uziel. Larva, *Hypera variabilis* [Coleoptera: Curculionidae]. Mar 1976. Israel: Sedé Eliyahu.
- 193 [ARSEF 447; ATCC 12590; CBS 155.56; RG Kenneth 3123; DS King M-7] C Drechsler. Decaying vegetable detritus. 20 Dec 1950. USA: Laplace, Louisiana. CULTURE EX TYPE.
- 447 [ARSEF 193 (lost); CBS 155.56; RG Kenneth 3123; DS King M-7] ATCC (12590) ← C Drechsler. Decaying vegetable detritus. 20 Dec 1950. USA: Laplace, Louisiana. CULTURE EX TYPE.
- Conidiobolus osmodes(?)** Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae
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- 5993 C Nielsen (KVL 98-15). Alate, *Rhopalosiphum padi* [Homoptera: Aphididae] on *Prunus padus*. 25 Sep 1998. Denmark: Copenhagen, Zealand.
- Conidiobolus paulus** Drechsler
[Entomophthoromycotina: Entomophthorales]
Ancylistaceae
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- 450 [CBS 140.57] ATCC (12942) ← C Drechsler. Plant detritus. 18 Nov 1954. USA: Park Falls, Wisconsin. CULTURE EX TYPE.

Conidiobolus pseudapiculatus S Keller

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae. This species is morphologically similar to *Batko a apiculata* (q.v.) in the size and shape of its primary conidia and production of stout rhizoids with a discoid holdfast.

- 1662 [IPLB 698] S Keller (478) ← JP Latgé. Rec'd 16 Oct 1984. Location not specified.
1664 [IPLB 877] S Keller (480) ← JP Latgé. Rec'd 16 Oct 1984. Location not specified.
1665 [IPLB 1027] S Keller (482) ← JP Latgé. Rec'd 16 Oct 1984. Location not specified.
2493 J Eilenberg (KVL 6). *Psila rosae* [Diptera: Psilidae]. 25 May 1986. Denmark: Strandholm, Fårevejle, Vestsjælland.
2496 J Eilenberg (KVL 11). *Psila rosae* [Diptera: Psilidae]. 2 Jun 1986. Denmark: Strandholm, Fårevejle, Vestsjælland.
2497 J Eilenberg (KVL 21). *Psila rosae* [Diptera: Psilidae]. 11 Aug 1986. Denmark: Strandholm, Fårevejle, Vestsjælland.
2502 J Eilenberg (KVL 24). *Psila rosae* [Diptera: Psilidae]. Aug 1986. Denmark: Strandholm, Fårevejle, Vestsjælland.

Conidiobolus pumilus Drechsler

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae

- 453 [CBS 152.56; DS King C-32] ATCC (12584) ← C Drechsler. Plant detritus. 28 Feb 1952. USA: Arlington, Virginia. CULTURE EX TYPE.
6383 AA Callaghan (35) or (01 and 020). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Pasture, Staffordshire, Keele, England.

Conidiobolus rhyosporus Drechsler

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae

- 448 [CBS 157.56] ATCC (12588) ← C Drechsler. Decaying vegetable detritus. Acc'd 28 Apr 1980. USA: Laplace, Louisiana. CULTURE EX TYPE.

Conidiobolus stromoideus Srinivasan & Thirumalachar

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae

- 8430 B Huang (L051115B3). Nov 2005. USA: Ithaca, New York.

Conidiobolus thrombooides Drechsler

[Entomophthoromycotina: Entomophthorales]

Ancylistaceae. Major synonyms: *Entomophthora virulenta* Hall & Dunn, *Entomophthora pyriformis* Thoizon, *Entomophthora destruens* Weiser & Batko.

- 2 [ARSEF 3364; CSIRO EM570] FR Holbrook. *Myzus persicae* [Homoptera: Aphididae]. May 1972. USA:

greenhouse, Aroostook State Farm, Presque Isle, Maine.

- 5 RS Soper. Adult, [Diptera: Heliomyzidae]. 31 Jul 1972. USA: Aroostook State Farm, Presque Isle, Maine.
15 [ARSEF 115, 208, 3360, 3361; CBS 183.60; CSIRO EM510, EM571; RG Kenneth 3022, 3035; NRRL 2780] ATCC (14270) ← I Hall. *Therioaphis maculata* [Homoptera: Aphididae] on *Medicago sativa*. Rec'd 2 Oct 1972. USA: California. CULTURE EX TYPE of *Entomophthora virulenta*.
22 RS Soper ← JE Henry. [Orthoptera: Acrididae]. 1973. USA: Bozeman, Montana.
29 RS Soper ← I Hall. *Therioaphis maculata* [Homoptera: Aphididae]. Acc'd 19 Apr 1982. USA: California.
39 RS Soper. *Myzus persicae* [Homoptera: Aphididae]. 12 Mar 1973. USA: State of Maine Potato Field, Homestead, Florida.
40 [ARSEF 3362; RG Kenneth 3024] *Macrosiphum euphorbiae* [Homoptera: Aphididae]. 1973. USA: Aroostook State Farm, Presque Isle, Maine.
41 [ARSEF 3359; RG Kenneth 3023] *Myzus persicae* [Homoptera: Aphididae]. Aug 1974. USA: Aroostook State Farm, Presque Isle, Maine.
42 [ARSEF 117 (lost); RG Kenneth 3025] N Wilding (3). *Aphis fabae* [Homoptera: Aphididae]. Jul 1973. United Kingdom: field collection, Bedfordshire, England.
57 RS Soper. *Myzus persicae* [Homoptera: Aphididae]. 29 Aug 1975. USA: Rogers Farm, Stillwater, Maine.
58 [Homoptera: Aphididae]. 18 May 1975. Commonwealth of Independent States.
59 [Homoptera: Aphididae]. 25 Jul 1975. Commonwealth of Independent States.
63 [CSIRO EM557] *Myzus persicae* [Homoptera: Aphididae]. 27 Jul 1975. Commonwealth of Independent States.
64 27 Jul 1975. Commonwealth of Independent States.
70 [ARSEF 3363; IPLB 4] G Remaudière ← R Krejzova. *Culex pipiens pipiens* [Diptera: Culicidae]. Acc'd Feb 1978. Czech Republic.
73 [CSIRO EM534; FPMI 28] RG Kenneth (3040) ← ATCC (24419) ← DM MacLeod ← G Thoizon. *Rhopalosiphum insertum* [Homoptera: Aphidiidae]. Rec'd 18 Jan 1976. France: Val-de-Marne, La Varenne.
83 [CSIRO EM551, EM572] RG Kenneth (3086) or (E.a. 38) ← A Uziel. *Aphis gossypii* [Homoptera: Aphididae] on pomegranate. 1976. Israel: Sedé Eliyahu.
84 [ARSEF 85] I Majchrowicz (14 10.6). Reisolate of ARSEF 22. Rec'd 6 Jul 1976. Laboratory manipulation.

- 85 [ARSEF 84] I Majchrowicz (14 10.6). Reisolate of ARSEF 22. Rec'd 6 Jul 1976. Laboratory manipulation.
- 86 [ARSEF 87] I Majchrowicz (17 16.6). [Diptera]. Sep 1974. Poland: Wielkopolski National Park.
- 87 [ARSEF 86] I Majchrowicz (17 16.6). [Diptera]. Sep 1974. Poland: Wielkopolski National Park.
- 99 N Wilding (8) ← EG Voronina. *Myzus persicae* [Homoptera: Aphididae]. 1963. Commonwealth of Independent States: St. Petersburg, Russia.
- 100 [CSIRO EM552, EM573] N Wilding (9) ← EG Voronina. *Acyrthosiphon pisum* [Homoptera: Aphididae]. 1963. Commonwealth of Independent States.
- 101 [ARSEF 1733] N Wilding (1). *Cavariella theobaldi* [Homoptera: Aphididae]. 20 Sep 1968. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 102 [ARSEF 1734, 363; CSIRO EM503] N Wilding (2). *Cavariella theobaldi* [Homoptera: Aphididae]. 20 Sep 1968. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 115 [ARSEF 15, 208, 3360, 3361; CBS 183.60; CSIRO EM510, EM571; RG Kenneth 3022, 3035; NRRL 2780] ATCC (14270) ← I Hall. *Theroaphis maculata* [Homoptera: Aphididae] on *Medicago sativa*. Acc'd 18 Dec 1987. USA: California. CULTURE EX TYPE of *Entomophthora virulenta*.
- 120 [IPLB 19] JP Latgé and G Remaudière. *Uroleucon* sp. [Homoptera: Aphididae] on *Solidago* sp. [Asteraceae]. 25 Aug 1976. Canada: Chute aux Galets, Québec.
- 194 I Ben-Ze'ev (38). *Aphis gossypii* [Homoptera: Aphididae] on pomegranate tree. Apr 1976. Israel: Sedé Eliyahu.
- 208 [ARSEF 115, 15, 3360, 3361; ATCC 14270; CBS 183.60; CSIRO EM510, EM571; RG Kenneth 3022, 3035; NRRL 2780] G Hartmann ← I Hall. *Theroaphis maculata* [Homoptera: Aphididae] on *Medicago sativa*. Rec'd Mar 1978. USA: California. CULTURE EX TYPE of *Entomophthora virulenta*.
- 242 I Majchrowicz. *Aphis fabae* [Homoptera: Aphididae] on sugar beet. Rec'd 6 Sep 1978. Poland: Szczecin.
- 244 I Majchrowicz. *Aphis fabae* [Homoptera: Aphididae] on sugar beet. Rec'd 6 Sep 1978. Poland: Szczecin.
- 245 I Majchrowicz. *Aphis fabae* [Homoptera: Aphididae] on sugar beet. Rec'd 6 Sep 1978. Poland: Szczecin.
- 246 I Majchrowicz. *Aphis fabae* [Homoptera: Aphididae] on sugar beet. Rec'd 6 Sep 1978. Poland: Szczecin.
- 247 I Majchrowicz. *Aphis fabae* [Homoptera: Aphididae] on sugar beet. Rec'd 6 Sep 1978. Poland: Szczecin.
- 248 I Majchrowicz ← EG Voronina. [Homoptera: Aphididae]. 25 Jul 1978. Commonwealth of Independent States.
- 249 I Majchrowicz ← EG Voronina. [Homoptera: Aphididae]. 25 Jul 1978. Commonwealth of Independent States.
- 250 I Majchrowicz ← EG Voronina. [Homoptera: Aphididae]. 25 Jul 1978. Commonwealth of Independent States.
- 363 [ARSEF 102, 1734] CSIRO (EM503) ← N Wilding (2). *Cavariella theobaldi* [Homoptera: Aphididae]. Acc'd 27 Jul 1979. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 630 I Majchrowicz (106). *Aphis fabae* [Homoptera: Aphididae]. 16 Jul 1981. Poland: Gumience, Szczecin.
- 631 I Majchrowicz (107). *Aphis fabae* [Homoptera: Aphididae]. 16 Jul 1981. Poland: Szczecin.
- 632 I Majchrowicz (110). *Aphis fabae* [Homoptera: Aphididae]. 25 Jul 1981. Poland: Gryfino, Szczecin.
- 633 I Majchrowicz (109). *Aphis fabae* [Homoptera: Aphididae]. 23 Jul 1981. Poland: Stanpanel.
- 634 I Majchrowicz (111). *Aphis fabae* [Homoptera: Aphididae]. 27 Jul 1981. Poland: Szczecin.
- 635 I Majchrowicz (108). *Aphis fabae* [Homoptera: Aphididae]. 18 Jul 1981. Poland: Szczecin.
- 649 JS Ferguson. *Myzus persicae* [Homoptera: Aphididae] on potato (*Solanum tuberosum*). 7 Aug 1981. USA: Arlington Experimental Farm, Columbia County, Wisconsin.
- 1006 J Aoki (Ent. 15) ← H Tomiyama. [Homoptera: Aphididae]. Nov 1976. Japan: Fuchu, Tokyo Prefecture.
- 1733 [ARSEF 101] N Wilding (1). *Cavariella theobaldi* [Homoptera: Aphididae]. 20 Sep 1968. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 1734 [ARSEF 102, 363; CSIRO EM503] N Wilding (2). *Cavariella theobaldi* [Homoptera: Aphididae]. 20 Sep 1968. United Kingdom: laboratory colony, Rothamsted Experimental Station, Hertfordshire, England.
- 1735 N Wilding (8). *Aphis fabae* [Homoptera: Aphididae]. Jul 1973. United Kingdom: Woburn Farm, Bedfordshire, England.
- 2828 MG Feng (MD8903). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2829 MG Feng (MD8907). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2849 MG Feng (MD8902). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2850 MG Feng (MD8908). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 21 Jul 1989. USA: Parma, Idaho.
- 2914 LL Hotz. *Diuraphis tritici* [Homoptera: Aphididae]. Rec'd 17 Nov 1989. USA: mixed field collection from Bozeman and Mocassin, Montana.
- 2955 MS Goettel. *Schizaphis graminum* [Homoptera: Aphididae]. 25 Sep 1989. Canada: Writing-on-Stone Prov. Park, Warner County, Alberta.

- 3129 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 28 Sep 1990. USA: Hoffman field # 6B, Catherine, New York.
- 3359 [ARSEF 41] Acc'd 31 Jul 1991. Location not specified. ARSEF 41 resting spores stored at 4°C on 14 May 1977 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3359.
- 3360 [ARSEF 115] Acc'd 31 Jul 1991. Location not specified. ARSEF 115 resting spores stored at 4°C on 23 March 1977 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3360.
- 3361 [ARSEF 15] Acc'd 31 Jul 1991. Location not specified. ARSEF 15 resting spores stored at 4°C on 9 July 1975 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3361.
- 3362 [ARSEF 40] Acc'd 31 Jul 1991. Location not specified. ARSEF 40 resting spores stored at 4°C on 31 January 1977 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3362.
- 3363 [ARSEF 70] Acc'd 31 Jul 1991. Location not specified. ARSEF 70 resting spores stored at 4°C from 25 March – 27 April 1976 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3363.
- 3364 [ARSEF 2] Acc'd 31 Jul 1991. Location not specified. ARSEF 2 resting spores stored at 4°C from 16 December – 13 January 1974 were inoculated onto plates on 17 July 1991 and accessioned as ARSEF 3364.
- 4968 J Hatting (A). *Diuraphis noxia* [Homoptera: Aphididae]. Aug 1995. South Africa: Bethlehem, Orange Free State.
- 6000 Rec'd 3 Dec 1998.
- 6001 Rec'd 3 Dec 1998.
- 6381 AA Callaghan (42) or (04 and 037). From the top 3 cm of litter and soil. Rec'd 20 Dec 1999. United Kingdom: Plantation of *Larix kaempferi*, Staffordshire, Keele, England.
- 6662 M Shternshis. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 1981. Russian Federation: Novosibirsk Region.
- 7209 AE Hajek (03 NY 7-3-1). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 3, North Rose, New York.
- 7210 AE Hajek (03 NY 7-3-2). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 3, North Rose, New York.
- 7211 AE Hajek (03 NY 7-3-3). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 3, North Rose, New York.
- 7215 [SRCAMB B-156] V Likhovidov ← BA Borisov. Rec'd 29 Sep 2003.

***Entomophaga* sp.**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 393 [FPMI 770] S Keller (114). Larva, [Lepidoptera]. Rec'd 27 May 1980. Switzerland.
- 1126 DW Roberts (020184-2A). *Nephrotettix bipunctata cincticeps* [Homoptera: Cicadellidae]. 2 Jan 1984. Philippines: IRRI, Los Baños, Manila.
- 1230 [CNPAF 84-04-09-1B; CP 130] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 9 Apr 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1881 DW Roberts (110485-2) and MC Rombach. *Nilaparvata lugens* [Homoptera: Delphacidae] on cacao. 11 Apr 1985. Solomon Islands: nr. Honiara, Guadalcanal.

Entomophaga asiatica Humber, Soper & Shimazu in Humber (sp. nov., unpublished)
[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.

- 1393 RS Soper (84627-6). [Orthoptera: Acrididae]. 27 Jun 1984. Japan: nr. Tsuruga, Fukui Prefecture.
- 1659 M Shimazu (F-457) and RS Soper. *Parapodisma* sp. [Orthoptera: Acrididae]. Jun 1984. Japan: Fukui Prefecture.

Entomophaga aulicae (Reichardt in Bail) Humber
[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae. Strains will grow as wall-less protoplasts in liquid tissue culture media or as walled hyphae on solid culture media.

- 51 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 16 Jun 1975. USA: 12.4 mi from Rt. 11/159 in Patten, Shin Pond, Maine.
- 164 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1977. USA: forest-lower, nr. Carroll, Maine.
- 165 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. Jul 1977. USA: Sherman, Maine.
- 166 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 14 Jul 1977. USA: forest-lower, nr. Carroll, Maine.
- 167 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 14 Jul 1977. USA: forest-upper, nr. Carroll, Maine.
- 168 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 14 Jul 1977. USA: forest-upper, nr. Carroll, Maine.
- 172 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. Jul 1977. USA: forest-lower, Shin Pond, Maine.

- 198 [ARSEF ?998; FPMI 707] RG Kenneth (3136) ← J Aoki. *Aedia leucomelas* [Lepidoptera: Noctuidae] on *Ipomea batatas* (sweet potato). 29 Oct 1976. Japan: Fuchu, Tokyo Prefecture.
- 251 JG Hamm. *?Heliothis* sp. [Lepidoptera: Noctuidae] on sorghum. Rec'd Sep 1978. USA: GA Coastal Plain Experiment Station, Tifton, Georgia.
- 998 [ARSEF ?198] J Aoki (Ent. 14) ← A Ohkawa. *Aedia leucomelas* [Lepidoptera: Noctuidae]. Oct 1976. Japan: Fuchu, Tokyo Prefecture.
- 1140 [ARSEF 1656] M Shimazu (F-339). [Lepidoptera]. 8 Apr 1982. Japan: Ibaraki Prefecture.
- 1655 [ARSEF 1142 (lost); CSIRO EM693] M Shimazu (F-343). *Dendrolimus spectabilis* [Lepidoptera: Lasiocampidae]. Rec'd Oct 1984. Japan: Ibaraki Prefecture.
- 1656 [ARSEF 1140] M Shimazu (F-339). [Lepidoptera]. Rec'd Oct 1984. Japan: Ibaraki Prefecture.
- 1657 [CSIRO EM690] M Shimazu (F-327). *Mamestra brassicae* [Lepidoptera: Noctuidae]. Acc'd 19 Oct 1984. Japan: Ibaraki Prefecture.
- 1751 J Mitsuhashi (Emb-1). *Mamestra brassicae* [Lepidoptera: Noctuidae]. 29 Oct 1984. Japan: Ibaraki Prefecture.
- 1990 FPMI (491). *Lambdina fiscellaria lugubrosa* [Lepidoptera: Geometridae]. 16 Aug 1972. Canada: Coquitlam, British Columbia.
- 1991 FPMI (458). *Lambdina fiscellaria fiscellaria* [Lepidoptera: Geometridae]. 8 Sep 1970. Canada: Boots Brook, Newfoundland.
- 1992 FPMI (889). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 5 Jul 1985. Canada: Black Sturgeon, Ontario.
- 1993 FPMI (771). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 25 Jun 1984. Canada: Black Sturgeon, Ontario.
- 1994 FPMI (776). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 22 Jun 1984. Canada: Black Sturgeon, Ontario.
- 1995 FPMI (777). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 22 Jun 1984. Canada: Black Sturgeon, Ontario.
- 1997 FPMI (894). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 29 Jul 1985. Canada: Black Sturgeon, Ontario.
- 1998 FPMI (877). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 11 Sep 1979. Canada: Thessalon, Ontario.
- 1999 FPMI (576). *Pseudaletia* sp. [Lepidoptera: Noctuidae]. 18 Jul 1976. Canada: Sault Ste. Marie, Ontario.
- 2000 FPMI (513). *Enypia griseata* [Lepidoptera: Geometridae]. 1975. Canada: British Columbia.
- 2362 M Shimazu (F-554-4). *Mamestra brassicae* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2363 M Shimazu (F-553-3). *Autographa gamma* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2365 M Shimazu (F-553-1). *Autographa gamma* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2366 M Shimazu (F-555). *Colias erate poliographus* [Lepidoptera: Pieridae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2367 M Shimazu (F-554-3). *Mamestra brassicae* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2368 M Shimazu (F-554-2). *Mamestra brassicae* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2369 M Shimazu (F-554-1). *Mamestra brassicae* [Lepidoptera: Noctuidae]. 26 Sep 1986. Japan: Hokkaido Prefecture.
- 2372 M Shimazu (F-531). *Spilosoma niveum* [Lepidoptera: Arctiidae]. 14 May 1986. Japan: Chiyoda-mura, Ibaraki Prefecture.
- 2373 M Shimazu (F-530-2). *Spilosoma niveum* [Lepidoptera: Arctiidae]. 6 May 1986. Japan: Sakura-mura, Chiba Prefecture.
- 2374 M Shimazu (F-530-1). *Spilosoma niveum* [Lepidoptera: Arctiidae]. 6 May 1986. Japan: Sakura-mura, Chiba Prefecture.
- 2843 JC Silver ← A Sands. *Heterocampa guttivitta* [Lepidoptera: Notodontidae]. Aug 1989. USA: Wilmington, Vermont.
- 2896 FPMI (521). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 13 Jul 1973. Canada: Newfoundland.
- 2897 FPMI (626). *Dryocampa rubicunda* [Lepidoptera: Saturniidae]. 1973. Canada: Ontario.
- 2898 FPMI (646). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 27 Jul 1978. Canada: Newfoundland.
- 2899 FPMI (717). *Rheumaptera hastata* [Lepidoptera: Geometridae]. 16 Aug 1982. Canada: Gargantua, Ontario.
- 2900 FPMI (893). *Lambdina fiscellaria fiscellaria* [Lepidoptera: Geometridae]. 29 Jul 1983. Canada: Gander, Newfoundland.
- 2901 FPMI (934). *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 2 Jul 1986. Canada: Black Sturgeon, Ontario.
- 2902 FPMI (597). *Heterocampa* sp. [Lepidoptera: Notodontidae]. 2 Aug 1976. Canada: St. Joseph's Island, Ontario.
- 2903 FPMI (598). *Ellida caniplaga* [Lepidoptera: Notodontidae]. 10 Aug 1976. Canada: St. Joseph's Island, Ontario.
- 2904 FPMI (600). *Heterocampa guttivitta* [Lepidoptera: Notodontidae]. 22 Jul 1976. Canada: Hilton Beach, Ontario.

- 2905 FPMI (602). *Heterocampa biundata* [Lepidoptera: Notodontidae]. 14 Aug 1976. Canada: St. Joseph's Island, Ontario.
- 3016 MH Griggs. Larva, [Lepidoptera: Noctuidae]. 9 Jul 1990. USA: Game Farm Rd., Ithaca, New York.
- 3039 AE Hajek. *Heterocampa guttivitta* [Lepidoptera: Notodontidae]. 3 Aug 1990. USA: Stamford, New York.
- 3212 AE Hajek. *Heterocampa guttivitta* [Lepidoptera: Notodontidae]. 3 Aug 1990. USA: Stamford, New York. Resting spores from ARSEF 3039.
- 3602 AE Hajek. *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 10 Jun 1991. USA: McGowan Woods, Ithaca, New York. Resting spores.
- 4004 [AE Hajek A-OV] Larva, *Orgyia vetusta* [Lepidoptera: Lymantriidae] Lupinus arboreus. Rec'd 12 Aug 1993. USA: Bodega Bay, California.
- 4005 [AE Hajek] Larva, *Orgyia vetusta* [Lepidoptera: Lymantriidae] Lupinus arboreus. Rec'd 12 Aug 1993. USA: Bodega Bay, California.
- 4006 [AE Hajek] Larva, *Orgyia vetusta* [Lepidoptera: Lymantriidae] Lupinus arboreus. Rec'd 12 Aug 1993. USA: Bodega Bay, California.
- 4007 AE Hajek. Larva, *Orgyia vetusta* [Lepidoptera: Lymantriidae] Lupinus arboreus. Rec'd 12 Aug 1993. USA: Bodega Bay, California.
- 4008 AE Hajek (D-OV). Larva, *Orgyia vetusta* [Lepidoptera: Lymantriidae] Lupinis arborevs. Rec'd 17 Aug 1993. USA: Bodega Bay, California.
- 7140 AE Hajek (03 ME 1-1-1). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: Coastal Studies Center, Orrs Island, Maine.
- 7141 AE Hajek (03 ME 2-1-1). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: 601 Merriman Point, Harpswell Neck, Maine.
- 7142 AE Hajek (03 ME 3-1-2). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: Yarmouth, Maine.
- 7143 AE Hajek (03 ME 4-1-1). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: Old Ledge School, Yarmouth, Maine.
- 7144 AE Hajek (03 ME 5-1-1). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: Windy Hill, Bailey Island, Maine.
- 7145 AE Hajek (03 ME 6-1-1). *Euproctis chrysorrhoea* [Lepidoptera: Lymantriidae]. 16 Jun 2003. USA: CCI CV, Bailey Island, Maine.

Entomophaga australiensis Humber (sp. nov., unpublished)
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 328 [FPMI 767] RS Soper (P-38). *Cicadella* sp. [Homoptera: Cicadellidae] on rice. Feb 1979. Australia: Arriga, Queensland.

- 331 [ARSEF 332 (lost)] RS Soper ← K Chandler. *Cicadetta puer* [Homoptera: Cicadidae] on sugar cane. 14 Feb 1979. Australia: Cairns, Queensland.
- 365 RS Soper. *Cicadetta puer* [Homoptera: Cicadidae]. 13 Feb 1979. Australia: Cairns, Queensland.
- 581 RS Soper (81223-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 23 Feb 1981. Indonesia: Bangun Village, Kecamatan Tanjung, Deliserdang District, Sumatera Utara, Sumatra.
- 743 [CNPAF 82-3-10-04; CP 33] RS Soper. [Homoptera: Cicadellidae]. 10 Mar 1982. Brazil: CNPAF, Goiânia, Goiás.
- 791 [CNPAF 82-5-7-3D-1; CP 44] RA Daoust and DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 7 May 1982. Brazil: 4 km from Goianinha, Rio Grande do Norte.
- 1888 RS Soper. Reisolate of ARSEF 743. 10 May 1982. Brazil: CNPAF, Goiânia, Goiás.
- 1920 P Taylor. Reisolate of ARSEF 331 passed through *Sogatodes oryzicola* [Homoptera: Delphacidae]. Jul 1985. Laboratory manipulation.

Entomophaga calopteni (Bessey) Humber
[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.

- 383 RA Humber ← DM MacLeod. *Melanoplus flavidus* [Orthoptera: Acrididae]. 3 Aug 1979. USA: Sheridan, Wyoming.
- 390 RA Humber ← RS Soper. *Melanoplus bivittatus* [Orthoptera: Acrididae]. 3 Aug 1979. USA: Sheridan, Wyoming.
- 408 RA Humber. *Melanoplus bivittatus* [Orthoptera: Acrididae]. 2 Aug 1979. USA: Broadus, Montana.
- 497 RA Humber and BJ Martinell. *Melanoplus bivittatus* [Orthoptera: Acrididae]. 27 Jun 1979. USA: Salt Water Canyon, Eagar, Arizona.
- 498 RA Humber and BJ Martinell. *Melanoplus bivittatus* [Orthoptera: Acrididae]. 5 Jul 1980. USA: White River, South Dakota.
- 500 RA Humber and BJ Martinell. *Melanoplus bivittatus* [Orthoptera: Acrididae] resting spore isolate passed through *Locusta migratoria* [Orthoptera: Acrididae]. Summer 1980. Laboratory manipulation.
- 623 BJ Martinell (004B(M. cun haem)). *Melanoplus cuneatus* [Orthoptera: Acrididae]. 18 Jun 1981. USA: Southwater Canyon, Arizona.
- 625 BJ Martinell (014B). *Melanoplus packardii* [Orthoptera: Acrididae]. 1 Jul 1981. USA: alfalfa field, Eagar, Arizona.
- 626 BJ Martinell (004A(M. cun femur)). *Melanoplus cuneatus* [Orthoptera: Acrididae]. 18 Jun 1981. USA: Southwater Canyon, Arizona.

- 646 BJ Martinell. *Melanoplus cuneatus* [Orthoptera: Acrididae]. 1 Jul 1981. USA: Eagar, Arizona.
- 2522 DG Holdom ← WA Ramoska. *Melanoplus differentialis* [Orthoptera: Acrididae]. Acc'd 8 Dec 1987. USA: Kansas.
- Entomophaga conglomerata*** (Sorokin) S Keller
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae
- 2273 EL Cuevas-Incle (II). Adult, [Diptera: Chironomidae]. 25 Sep 1986. USA: Michigan Hollow, Danby, New York.
- Entomophaga macleodii*** Humber (sp. nov., unpublished)
[Entomophthoromycotina: Entomophthorales]
- Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.
- 375 [FPMI 647] DM MacLeod. *Dissosteira carolina* [Orthoptera: Acrididae]. 20 Apr 1989. Canada: nr. river bank, Iron Bridge, Ontario.
- 376 [FPMI 625] DM MacLeod. *Dissosteira carolina* [Orthoptera: Acrididae]. 21 Jul 1977. Canada: nr. river bank, Iron Bridge, Ontario.
- 382 RS Soper. *Dissosteira carolina* [Orthoptera: Acrididae]. Aug 1979. USA: 12 Redwood Lane, Ithaca, New York.
- 496 RA Humber and BJ Martinell. *Camnula pellucida* [Orthoptera: Acrididae]. 28 Jun 1980. USA: Rodeo fairground, Alpine, Arizona.
- 499 RA Humber, BJ Martinell and RS Soper. *Dissosteira carolina* [Orthoptera: Acrididae]. 17 Jul 1980. USA: Ithaca, New York.
- 618 BJ Martinell (003(Rodeo)). *Camnula pellucida* [Orthoptera: Acrididae]. 16 Jun 1981. USA: Rodeo fairground, Alpine, Arizona.
- 619 BJ Martinell (001(FSA)). *Camnula pellucida* [Orthoptera: Acrididae]. 16 Jun 1981. USA: Forest Service plot A, Alpine, Arizona.
- 620 BJ Martinell (006(Judd B proto)). *Camnula pellucida* [Orthoptera: Acrididae]. 27 Jun 1981. USA: Judd Dam plot B, nr. Alpine, Arizona.
- 621 BJ Martinell (010(AlpineA)). *Camnula pellucida* [Orthoptera: Acrididae]. 29 Jun 1981. USA: Alpine plot A, Alpine, Arizona.
- 624 BJ Martinell (011(JuddA)). *Camnula pellucida* [Orthoptera: Acrididae]. 29 Jun 1981. USA: Judd Dam plot A, nr. Alpine, Arizona.
- 628 BJ Martinell (008). *Camnula pellucida* [Orthoptera: Acrididae]. 27 Jun 1981. USA: Alpine plot B, Alpine, Arizona.
- 629 BJ Martinell (002). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jun 1981. USA: Forest Service plot B, Alpine, Arizona.
- 765 BJ Martinell (41). *Camnula pellucida* [Orthoptera: Acrididae]. 28 Jul 1982. USA: Judd Dam, nr. Alpine, Arizona.
- 767 BJ Martinell (1). *Camnula pellucida* [Orthoptera: Acrididae]. 18 Jul 1982. USA: Jepson's Ranch, Alpine, Arizona.
- 768 BJ Martinell (3). *Camnula pellucida* [Orthoptera: Acrididae]. 18 Jul 1982. USA: Rodeo fairground, Alpine, Arizona.
- 769 BJ Martinell (13). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jul 1982. USA: ELC Flat, nr. Alpine, Arizona.
- 770 BJ Martinell (20). *Camnula pellucida* [Orthoptera: Acrididae] isolate passed through *Melanoplus bivittatus* [Orthoptera: Acrididae]. 23 Jul 1982. Laboratory manipulation.
- 771 BJ Martinell (21). *Camnula pellucida* [Orthoptera: Acrididae] isolate passed through *Melanoplus bivittatus* [Orthoptera: Acrididae]. 23 Jul 1982. Laboratory manipulation.
- 772 BJ Martinell (12). *Camnula pellucida* [Orthoptera: Acrididae] isolate passed through *Melanoplus packardii* [Orthoptera: Acrididae]. 18 Jul 1982. Laboratory manipulation.
- 773 BJ Martinell (10). *Camnula pellucida* [Orthoptera: Acrididae]. 18 Jul 1982. USA: Rodeo fairground, Alpine, Arizona.
- 774 BJ Martinell (25). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jul 1982. USA: ELC Flat, nr. Alpine, Arizona.
- 775 BJ Martinell (11) and RS Soper. *Camnula pellucida* [Orthoptera: Acrididae] isolate passed through *Melanoplus packardii* [Orthoptera: Acrididae]. 18 Jul 1982. Laboratory manipulation.
- 776 BJ Martinell (8) and RS Soper. *Camnula pellucida* [Orthoptera: Acrididae] isolate passed through *Melanoplus bivittatus* [Orthoptera: Acrididae]. 18 Jul 1982. Laboratory manipulation.
- 777 BJ Martinell (28). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jul 1982. USA: Judd Dam, nr. Alpine, Arizona.
- 778 BJ Martinell (23). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jul 1982. USA: ELC Flat, nr. Alpine, Arizona.
- 779 BJ Martinell (22). *Camnula pellucida* [Orthoptera: Acrididae]. 23 Jul 1982. USA: ELC flats, nr. Alpine, Arizona.
- 3077 L Postie (Reisolate 1). Reisolate of ARSEF 768 passed through *Camnula pellucida* [Orthoptera: Acrididae]. Apr 1990. Laboratory manipulation.
- 3078 L Postie (Reisolate 2). Reisolate of ARSEF 768 passed through *Camnula pellucida* [Orthoptera: Acrididae]. Apr 1990. Laboratory manipulation.
- 3079 L Postie (Reisolate 3). Reisolate of ARSEF 3078 passed through *Camnula pellucida* [Orthoptera: Acrididae]. 6 Aug 1990. Laboratory manipulation.

- 4948 JA Correa (I) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. 26 Jun 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon. 1) Reisolate of ARSEF 770.
- 4949 JA Correa (II) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. 26 Jun 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon. 1) Reisolate of ARSEF 770.
- 4950 JA Correa (III) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. 26 Jun 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon. 1) Reisolate of ARSEF 770.
- 4951 JA Correa (IV) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. Rec'd 9 Aug 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon.
- 4952 JA Correa (V) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. 26 Jun 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon. 1) Reisolate of ARSEF 770.
- 4953 JA Correa (VI) ← S Sanchez-Peña. *Camnula pellucida* [Orthoptera: Acrididae]. 26 Jun 1995. USA: Klamath National Wildlife Refuge, Klamath County, Oregon. 1) Reisolate of ARSEF 770.

Entomophaga maimaiga Humber, Shimazu & Soper in Soper, Shimazu, Humber, Ramos & Hajek [Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Strains will grow as wall-less protoplasts in liquid tissue culture media or as walled hyphae on solid culture media.

- 1390 RS Soper (84626-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 26 Jun 1984. Japan: Torigoe, Ishikawa Prefecture.
- 1391 [FPMI 963] RS Soper (84626-7-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 26 Jun 1984. Japan: Torigoe, Ishikawa Prefecture.
- 1392 [FPMI 964] RS Soper (84626-7-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 26 Jun 1984. Japan: Torigoe, Ishikawa Prefecture.
- 1400 [FPMI 952] RS Soper (84626-7). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 26 Jun 1984. Japan: Torigoe, Ishikawa Prefecture.
- 1658 M Shimazu (F-446). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 26 Jun 1984. Japan: Ishikawa Prefecture.
- 1746 M Shimazu. Reisolate of ARSEF 1400 passed through *Lymantria dispar* [Lepidoptera: Lymantriidae]. 28 Nov 1984. Laboratory manipulation.
- 2370 M Shimazu (F-541-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 11 Jul 1986. Japan: Sakuramura, Chiba Prefecture.
- 2371 M Shimazu (F-541-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 11 Jul 1986. Japan: Sakuramura, Chiba Prefecture.

- 2661 AE Hajek. Reisolate of ARSEF 1400 passed through *Lymantria dispar* [Lepidoptera: Lymantriidae]. 23 Oct 1988. Laboratory manipulation.
- 2775 AE Hajek (CTIV-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 21 Jun 1989. USA: Wilton, Connecticut.
- 2779 AE Hajek. *Lymantria dispar* [Lepidoptera: Lymantriidae]. 25 Jun 1989. USA: Northampton, Massachusetts.
- 2780 AE Hajek. *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 Jul 1989. USA: North Conway, New Hampshire.
- 3052 AE Hajek (L1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 27 May 1990. USA: Ward Pound Ridge Reservation, Westchester County, New York.
- 3053 AE Hajek (L3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 27 May 1990. USA: Ward Pound Ridge Reservation, Westchester County, New York.
- 3110 AE Hajek. Reisolate of ARSEF 1400 passed through *Lymantria dispar* [Lepidoptera: Lymantriidae]. 6 Feb 1989. Laboratory manipulation.
- 3762 AE Hajek ← JC Silver. Rec'd 10 Jul 1992. Location not specified.
- 3828 AE Hajek (001-TA). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3829 AE Hajek (001-TB). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3830 AE Hajek (001-TC). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3831 AE Hajek (001-TD). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3832 AE Hajek (001-TE). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3833 AE Hajek (001-TF). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3834 AE Hajek (001-TG). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3835 AE Hajek (001-TH). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae] Quercus rubra. 26 Jun 1992. USA: Tower Rd., Ithaca, New York.
- 3880 S Walsh (3762T23) ← ARSEF (3762). Rec'd 19 Feb 1993. Laboratory manipulation. Culture maintained for genetic variance studies.
- 3887 S Walsh (Hr 56). Rec'd 19 Feb 1993. Culture maintained for genetic variability.
- 3913 M Welton (FPMI 992). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 8 Jun 1992. Canada: Kingston, Ontario region, Adolphstown Twp, Ontario.

- 4504 AE Hajek (Ci-1) ← S Talley. Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 18 May 1994. USA: George Washington National Park, Rockbridge County, Virginia. Fungus collected from Catocala ilia. L. dispar died 5 days after conidial shower, then produced conidia. Fungus isolated from L. dispar.
- 4505 AE Hajek (C.i.-2) ← S Talley. Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 18 May 1994. USA: George Washington National Park, Rockbridge County, Virginia. Fungus collected from Catocala ilia. L. dispar died 5 days after conidial shower, then produced conidia. Fungus isolated from L. dispar.
- 4506 AE Hajek (C.i.-3) ← S Talley. Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 18 May 1994. USA: George Washington National Forest, Rockbridge County, Virginia. Fungus collected from Catocala ilia. L. dispar died 5 days after conidial shower, then produced conidia. Fungus isolated from L. dispar.
- 4507 AE Hajek (C.i.-4) ← S Talley. Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 18 May 1994. USA: George Washington National Forest, Rockbridge County, Virginia. Fungus collected from Catocala ilia. L. dispar died 5 days after conidial shower, then produced conidia. Fungus isolated from L. dispar.
- 4508 AE Hajek (I.S.-1). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 27 May 1994. USA: Irish Settlement Road; Yellow Barn Forest, Ithaca, New York.
- 4509 AE Hajek (I.S.-2). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 27 May 1994. USA: Irish Settlement Road; Yellow Barn Forest, Ithaca, New York.
- 4510 AE Hajek (I.A.-3). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. 27 May 1994. USA: Irish Settlement Road; Yellow Barn Forest, Ithaca, New York.
- 4545 AE Hajek (B-20MD#2). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 30 May 1994. Isolated through *Lymantria dispar* larvae.
- 4549 AE Hajek (I.S. 4) or (94 NY1-4A). *Lymantria dispar* [Lepidoptera: Lymantriidae] Soil sith resting spores. Rec'd 22 Aug 1994. USA: Irish Settlement Rd; Yellow Barn State Forest, Dryden, New York.
- 4550 AE Hajek (I.S. 5). *Lymantria dispar* [Lepidoptera: Lymantriidae] Soil sith resting spores. Rec'd 22 Aug 1994. USA: Irish Settlement Rd; Yellow Barn State Forest, Dryden, New York.
- 4551 AE Hajek (I.S. 6). *Lymantria dispar* [Lepidoptera: Lymantriidae] Soil sith resting spores. Rec'd 22 Aug 1994. USA: Irish Settlement Rd; Yellow Barn State Forest, Dryden, New York.
- 4552 AE Hajek (VA - A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 22 Aug 1994. USA: Union Springs, Rockingham County, Virginia.
- 4553 AE Hajek (VA - C). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 22 Aug 1994. USA: Little River, Rockingham County, Virginia.
- 4554 AE Hajek (VA - E). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 22 Aug 1994. USA: Big Mary's, Rockingham County, Virginia.
- 4555 AE Hajek (VA - F). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 22 Aug 1994. USA: Wiggins Springs, Rockingham County, Virginia.
- 5377 AE Hajek (96 MD A2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5378 AE Hajek (96 MD A2-2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5379 AE Hajek (96 MD B2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5380 AE Hajek (96 MD B2-2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5381 AE Hajek (96 MD B2-3). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5382 AE Hajek (96 MD B2-4). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5383 AE Hajek (96 MD B2-5). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5384 AE Hajek (96 MD B2-6). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5385 AE Hajek (96 MD C2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5386 AE Hajek (96 MD D2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5387 AE Hajek (96 MD D2-2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5388 AE Hajek (96 MD E2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5389 AE Hajek (96 MD E2-2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5390 AE Hajek (96 MD F2-1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Sudlersville, Maryland.
- 5391 AE Hajek (96 NY B2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.

- 5392 AE Hajek (96 NY C2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5393 AE Hajek (96 NY C3). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5394 AE Hajek (96 NY D1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5395 AE Hajek (96 NY D2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5396 AE Hajek (96 NY D3). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5397 AE Hajek (96 NY E1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5398 AE Hajek (96 NY E2). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5399 AE Hajek (96 NY E3). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5400 AE Hajek (96 NY F1). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5401 AE Hajek (96 NY F3). 4th instar larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Rec'd 10 Dec 1996. USA: Yellow Barn State Forest, Dryden, New York.
- 5563 AE Hajek (96MA1-1A). Rec'd 3 Nov 1997.
- 5564 AE Hajek (96MA1-1B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 9 May 1996. USA: Quabbin Reservoir, Franklin County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 5565 AE Hajek (92NJ1-1A). Rec'd 3 Nov 1997.
- 5566 AE Hajek (94VA2-2A). Rec'd 3 Nov 1997.
- 5567 AE Hajek (94VA2-2B). Rec'd 3 Nov 1997.
- 5568 AE Hajek (97VA10-1A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 1997. USA: Elliot Spring Run, Butler field plot 1, George Washington National Forest, Virginia. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 5569 AE Hajek (96VA9-1A). Rec'd 10 Nov 1997.
- 5570 AE Hajek (96VA9-1B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Dec 1996. USA: Archer Run, Deerfield Ranger District, Butler field plot 2, George Washington National Forest, Virginia. Host infected in laboratory upon exposure to germinating resting spores in field collected soil.
- 5571 AE Hajek (97VA10-1B). Rec'd 10 Nov 1997.
- 5572 AE Hajek (92NJ1-1B). Rec'd 13 Nov 1997.
- 5711 AE Hajek (96MA1-1C). Rec'd 13 May 1998.
- 6004 AE Hajek (98 MA2-8A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6005 AE Hajek (98 MA2-14A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6006 AE Hajek (98MI1-2A). Rec'd 21 Jan 1999.
- 6007 AE Hajek (98MI1-2B). Rec'd 21 Jan 1999.
- 6051 AE Hajek (98MA2-4A). Rec'd 19 Feb 1999.
- 6052 AE Hajek (98MA2-4B). Rec'd 19 Feb 1999.
- 6053 AE Hajek (98MI1-1A). Rec'd 19 Feb 1999.
- 6054 AE Hajek (98MI1-1B). Rec'd 19 Feb 1999.
- 6105 AE Hajek (98MA2-6B). Rec'd 31 Mar 1999.
- 6106 AE Hajek (98MA2-8B). Rec'd 31 Mar 1999.
- 6161 AE Hajek (96 MD B2-4). Rec'd 12 May 1999.
- 6162 AE Hajek (98 JP2-9A). Rec'd 12 May 1999.
- 6163 AE Hajek (98 JP2-5B). Rec'd 12 May 1999.
- 6168 AE Hajek (94 WV1-1A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 1994. USA: Hawes Run, Pendleton County, West Virginia. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6169 AE Hajek (94 VA8-1A) or (VA-IVY). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 1994. USA: IVY Branch, Amherst County, Virginia. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6170 AE Hajek (99 WV2-2C). *Malacosoma americanum* [Lepidoptera: Lasiocampidae]. May 1999. Isolated from *Malacosoma disstria* exposed to sporulating cadaver.
- 6171 AE Hajek (98 JP3-5A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6172 AE Hajek (98 JP3-5B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.

- 6173 AE Hajek (99 WV2-2A). *Malacosoma americanum* [Lepidoptera: Lasiocampidae]. May 1999. Isolated from *Lymantria dispar* after passage through *Malacosoma disstria* exposed to sporulating cadaver of *M. americanum*.
- 6174 AE Hajek (99 WV2-2B). *Malacosoma americanum* [Lepidoptera: Lasiocampidae]. May 1999. Isolated from *Lymantria dispar* after passage through *Malacosoma disstria* exposed to sporulating cadaver of *M. americanum*.
- 6212 AE Hajek (98 JP2-5A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6218 AE Hajek (94 VA4-3A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 1994. USA: Mines Run, George Washington National Forest, Rockingham County, Virginia. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6223 AE Hajek (98 JP2-22B). Rec'd 25 Aug 1999.
- 6224 AE Hajek (98 JP2-10B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6253 AE Hajek (98 JP2-4A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6254 AE Hajek (98 JP2-10A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6255 AE Hajek (98 JP2-14A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6256 AE Hajek (98 JP2-14B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6257 AE Hajek (98 JP2-22A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6258 AE Hajek (98 JP3-8A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- ratory upon exposure to germinating resting spores in field-collected soil.
- 6264 AE Hajek (98 JP2-22B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6265 AE Hajek (98 JP3-8B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6266 AE Hajek (98 JP3-9A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6267 AE Hajek (98 JP2-21A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1 Sep 1998. Japan: Yamauchi, Chonan, Chiba Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6268 AE Hajek (98 JP3-9B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2 Sep 1998. Japan: Namiki, Tsukuba, Ibaraki Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6269 AE Hajek (98 MA2-2A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6270 AE Hajek (98 MA2-2B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6271 AE Hajek (98 MA2-6A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6272 AE Hajek (98 MA2-14B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1998. USA: The Notch, Hampshire County, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6523 AE Hajek (99 MI9-1A). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1999. USA: Site #9, Oceana County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6524 AE Hajek (99 MI9-2A). Larva, *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 1999. USA: Site #9, Oceana County, Michigan. Host infected in

- laboratory upon exposure to germinating resting spores in field-collected soil.
- 6625 AE Hajek (00 NY 1-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 20 Jun 2000. USA: Yellow Barn State Forest, Dryden, New York. Host infected in laboratory upon exposure to field-collected sporulating cadaver of *L. dispar*.
- 6626 AE Hajek (00 MI 3-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 3, Manistee County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6627 AE Hajek (00 MI 17-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 17, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6628 AE Hajek (00 MI 19-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 19, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6629 AE Hajek (00 MI 24-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 24, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6630 AE Hajek (00 MI 27-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 27, Kalkaska County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6652 AE Hajek (00 MI 2-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 11 Jun 2000. USA: Stand 2, Grand Traverse County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6653 AE Hajek (00 MI 4-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 14 Jun 2000. USA: Stand 4, Manistee County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6654 AE Hajek (00 MI 18-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Jun 2000. USA: Stand 18, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6655 AE Hajek (00 MI 28-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 28, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6656 AE Hajek (00 MI 29-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 29, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6657 AE Hajek (00 MI 33-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 12 Jun 2000. USA: Stand 33, Clare County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6663 AE Hajek (00 MI 2-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 11 Jun 2000. USA: Stand 2, Grand Traverse County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6664 AE Hajek (00 MI 3-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 14 Jun 2000. USA: Stand 3, Manistee County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6665 AE Hajek (00 MI 3-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 14 Jun 2000. USA: Stand 3, Manistee County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6666 AE Hajek (00 MI 12-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 10 Jun 2000. USA: Stand 12, Lake County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6667 AE Hajek (00 MI 12-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 10 Jun 2000. USA: Stand 12, Lake County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6668 AE Hajek (00 MI 12-2-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 10 Jun 2000. USA: Stand 12, Lake County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6724 AE Hajek (00 MI 3-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 14 Jun 2000. USA: Stand 3, Manistee County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6725 AE Hajek (00 MI 19-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Jun 2001. USA: Stand 19, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6726 AE Hajek (00 MI 24-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 Jun 2003. USA: Stand 24, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6727 AE Hajek (00 MI 27-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 11 Jun 2000. USA: Stand 27, Kalkaska County, Michigan. Host infected in

- laboratory upon exposure to germinating resting spores in field-collected soil.
- 6728 AE Hajek (00 MI 17-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Jun 2000. USA: Stand 17, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 6729 AE Hajek (00 MI 17-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Jun 2000. USA: Stand 17, Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7101 AE Hajek (99 MI 5-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1999. USA: Mason County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7102 AE Hajek (99 MI 27). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1999. USA: Kalkaska County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7103 AE Hajek (00 MI 29-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 29, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7104 AE Hajek (01 JP 4-11-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7105 AE Hajek (01 JP 4-12-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7106 AE Hajek (99 MI 28-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1999. USA: Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7107 AE Hajek (00 MI 28-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 28, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7108 AE Hajek (00 MI 28-1-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 28, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7109 AE Hajek (00 MI 29-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Jun 2000. USA: Stand 29, Roscommon County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7110 AE Hajek (00 MI 33-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 12 Jun 2000. USA: Stand 33, Clare County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7111 AE Hajek (00 MI 33-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 12 Jun 2000. USA: Stand 33, Clare County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7112 AE Hajek (01 JP 4-11-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7113 AE Hajek (01 JP 4-11-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7114 AE Hajek (01 JP 4-12-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7115 AE Hajek (99 MI 21). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 1999. USA: Newaygo County, Michigan. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7116 AE Hajek (01 JP 4-12-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 2001. Japan: Tmayama Village, Morioka City, Iwate Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7120 AE Hajek (03 PA 1-1-1A). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Metzer Trail, Lycoming County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7121 AE Hajek (03 PA 1-1-1B). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Metzer Trail, Lycoming County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7122 AE Hajek (03 PA 1-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Metzer Trail, Lycoming County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7123 AE Hajek (03 MA 3-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.

- 7124 AE Hajek (03 MA 3-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7125 AE Hajek (03 MA 3-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7126 AE Hajek (03 MA 3-2-3). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7127 AE Hajek (03 RU 1-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 8 Jul 1999. Russian Federation: oak stand, Khabarovsk. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7131 AE Hajek (03 PA 2-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Route 54, north of Danville, Montour County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7132 AE Hajek (03 PA 3-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Klein Road, Montour County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7133 AE Hajek (03 PA 4-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Comfort Road, Montour County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7134 AE Hajek (03 PA 5-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Cold Run Road, Northumberland County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7135 AE Hajek (03 PA 6-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Route 890, north of Trevorton, Northumberland County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7136 AE Hajek (03 PA 7-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Southhampton Twp near town of Chaneysville, Bedford County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7137 AE Hajek (03 MA 3-2-4). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7138 AE Hajek (03 MA 3-2-5). *Lymantria dispar* [Lepidoptera: Lymantriidae]. Apr 2003. USA: Myles Standish State Forest, South Carver, Massachusetts. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7139 AE Hajek (02 CN 1-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 20 Jul 2002. PR China: Soil sample number MS5, Maoershan, Heilongjiang. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7183 AE Hajek (02 CN 1-2-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 20 Jul 2002. PR China: Soil sample number MS3, Maoershan, Heilongjiang. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7184 AE Hajek (02 CN 1-2-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 20 Jul 2002. PR China: Soil sample number MS3, Maoershan, Heilongjiang. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7185 AE Hajek (03 JP 5-1-1). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 May 2003. Japan: Soil sample beneath tree number 1, Takehara, Hiroshima Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7186 AE Hajek (03 JP 5-1-2). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 May 2003. Japan: Soil sample beneath tree number 1, Takehara, Hiroshima Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7187 AE Hajek (03 JP 5-1-4). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 May 2003. Japan: Soil sample beneath tree number 1, Takehara, Hiroshima Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7188 AE Hajek (03 JP 5-1-6). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 May 2003. Japan: Soil sample beneath tree number 1, Takehara, Hiroshima Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7189 AE Hajek (03 JP 5-1-5). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 13 May 2003. Japan: Soil sample beneath tree number 1, Takehara, Hiroshima Prefecture. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7190 AE Hajek (03 PA 1-1-5). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Metzer Trail, Lycoming County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- 7352 AE Hajek (03 PA 5-1-5). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Cold Run Road, Northumberland County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.

Fungal Cultures

Entomophaga maimaiga *Entomophthora muscae*

- 7353 AE Hajek (03 PA 6-1-4). *Lymantria dispar* [Lepidoptera: Lymantriidae]. 16 Apr 2003. USA: Route 890, north of Trevorton, Northumberland County, Pennsylvania. Host infected in laboratory upon exposure to germinating resting spores in field-collected soil.
- Entomophaga praxibuli*** Humber, Milner, & Soper (sp. nov., unpublished)
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.
-
- 840 RS Soper. *Praxibulus* sp. [Orthoptera: Acrididae]. 1983. Australia: Wanwibinda, New South Wales.
- 2721 ME Ramos. Reisolate of ARSEF 840 passed through *Cannula pellucida* [Orthoptera: Acrididae]. Spring 1989. Laboratory manipulation.
- 2963 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus differentialis* [Orthoptera: Acrididae]. 7 Mar 1990. Laboratory manipulation.
- 2964 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus differentialis* [Orthoptera: Acrididae]. 7 Mar 1990. Laboratory manipulation.
- 2965 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus differentialis* [Orthoptera: Acrididae]. 7 Mar 1990. Laboratory manipulation.
- 2966 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus differentialis* [Orthoptera: Acrididae]. 7 Mar 1990. Laboratory manipulation.
- 2967 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus sanguinipes* [Orthoptera: Acrididae]. 14 Mar 1990. Laboratory manipulation.
- 2968 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus sanguinipes* [Orthoptera: Acrididae]. 14 Mar 1990. Laboratory manipulation.
- 2969 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus sanguinipes* [Orthoptera: Acrididae]. 14 Mar 1990. Laboratory manipulation.
- 2970 ME Ramos. *Praxibulus* sp. [Orthoptera: Acrididae] conidial isolate passed through *Melanoplus sanguinipes* [Orthoptera: Acrididae]. 14 Mar 1990. Laboratory manipulation.
- 3058 ME Ramos. *Empoasca vitis* [Homoptera: Cicadellidae]. 10 Aug 1990. Laboratory manipulation.
Reisolate of ARSEF 2964.
- 3059 ME Ramos. Reisolate of ARSEF 2964 passed through *Melanoplus differentialis* [Orthoptera: Acrididae]. 10 Aug 1990. Laboratory manipulation.
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- 3060 ME Ramos. Reisolate of ARSEF 2964 passed through *Melanoplus infantilis* [Orthoptera: Acrididae]. 10 Aug 1990. Laboratory manipulation.
- 3061 ME Ramos. Reisolate of ARSEF 2964 passed through *Melanoplus infantilis* [Orthoptera: Acrididae]. 10 Aug 1990. Laboratory manipulation.
- 3068 ME Ramos. Reisolate of ARSEF 2964 passed through *Melanoplus infantilis* [Orthoptera: Acrididae]. 10 Aug 1990. Laboratory manipulation.
- 3069 ME Ramos. Reisolate of ARSEF 2964 passed through *Melanoplus bivittatus* [Orthoptera: Acrididae]. 10 Aug 1990. Laboratory manipulation.
- 3356 ME Ramos (Cape). Reisolate of ARSEF 3059 passed through *Cannula pellucida* [Orthoptera: Acrididae]. Rec'd 10 Jul 1991. Laboratory manipulation.
- 3357 ME Ramos (Mesa). Reisolate of ARSEF 3059 passed through *Melanoplus sanguinipes* [Orthoptera: Acrididae]. Rec'd 10 Jul 1991. Laboratory manipulation.
- 3358 ME Ramos (Mebi). Reisolate of ARSEF 3059 passed through *Melanoplus bivittatus* [Orthoptera: Acrididae]. Rec'd 10 Jul 1991. Laboratory manipulation.
- Entomophthora chromaphidis*** Burger & Swain
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. This taxon has been segregated from *Entomophthora planchoniana* Cornu (see Humber & Feng, 1991, Mycotaxon 51:497-504). Strains should be incubated at temperatures $\leq 20^{\circ}\text{C}$.
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- 1860 DG Holdom (UQE-2-2). *Acyrthosiphon kondoi* [Homoptera: Aphididae]. Jun 1981. Australia: Lockyer Valley, Queensland.
- 1862 DG Holdom (UQE-15). *Acyrthosiphon kondoi* [Homoptera: Aphididae]. Jan 1983. Australia: Lockyer Valley, Queensland.
- 1863 DG Holdom (UQE-21). *Acyrthosiphon kondoi* [Homoptera: Aphididae]. Jan 1983. Australia: Lockyer Valley, Queensland.
- Entomophthora culicis*** (Braun) Fresenius
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae
-
- 387 S Keller (55). [Diptera: Nematocera]. Rec'd 3 Oct 1979. Switzerland: Zürich.
- 5811 J Eilenberg (KVL 98-4). [Diptera: Chironomidae]. Aug 1997. Denmark: KVL garden, Copenhagen, Frederiksberg, Zealand.
- Entomophthora muscae*** (Cohn) Fresenius
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. This taxon is a partially resolved species complex (see Keller, 1984, Mitt. Schweiz. Entomol. Ges. 57: 131-132). Most strains are provided only as vegetative protoplasts in liquid tissue culture medium.
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- 392 [ARSEF 466 (lost)] S Keller (39). [Diptera]. Rec'd 18 Oct 1979. Switzerland.

- 454 RA Humber ← JP Kramer. *Musca domestica* [Diptera: Muscidae]. Mar 1980. USA: laboratory colony, Ithaca, New York.
- 556 RA Humber. *Musca domestica* [Diptera: Muscidae]. 11 Mar 1981. USA: JP Kramer's laboratory colony, Cornell University, Ithaca, New York.
- 557 BJ Martinell. *Musca domestica* [Diptera: Muscidae]. 10 Mar 1981. USA: Boyce Thompson Institute, Ithaca, New York.
- 651 BJ Martinell ← DE McCabe. *Pollenia rudis* [Diptera: Calliphoridae]. 5 Nov 1981. USA: Keuka Park, New York.
- 707 RA Humber. *Delia platura* [Diptera: Anthomyiidae]. 20 Feb 1982. United Kingdom: N Wilding's green-house colony, Rothamsted Experimental Station, Hertfordshire, England.
- 803 JD Vandenberg. *Musca domestica* [Diptera: Muscidae]. Acc'd 7 Mar 1988. USA: 119 Middaugh Rd., Brooktondale, New York.
- 826 DC Steinkraus. [Diptera: Syrphidae]. 1982. USA: Ithaca, New York.
- 2014 RA Humber. *Musca domestica* [Diptera: Muscidae]. 10 Mar 1981. USA: JP Kramer's laboratory colony, Cornell University, Ithaca, New York.
- 2087 TJ Poprawski (0195). Adult, [Diptera: Anthomyiidae] in rapeseed field. Acc'd 19 Feb 1986. France: Béhoust, Yvelines.
- 2088 TJ Poprawski (0196). Adult, [Diptera: Anthomyiidae] in rapeseed field. Acc'd 19 Feb 1986. France: Béhoust, Yvelines.
- 2089 TJ Poprawski (0197). Adult, *Delia* sp. [Diptera: Anthomyiidae] in sunflower field. Acc'd 19 Feb 1986. France: Béhoust, Yvelines.
- 2172 BA Mullens. *Musca domestica* [Diptera: Muscidae]. Acc'd 30 May 1986. USA: Riverside, California.
- 2263 TJ Poprawski (8617). Adult, *Delia* sp. [Diptera: Anthomyiidae] on rapeseed. 16 Jun 1986. France: Béhoust, Yvelines.
- 2264 TJ Poprawski (8619). Adult, *Delia* sp. [Diptera: Anthomyiidae] on rapeseed. 16 Jun 1986. France: Béhoust, Yvelines.
- 2265 TJ Poprawski (8622). Adult, *Delia* sp. [Diptera: Anthomyiidae] on rapeseed. 19 Jun 1986. France: Béhoust, Yvelines.
- 2266 TJ Poprawski (8624). Adult, *Delia* sp. [Diptera: Anthomyiidae] on rapeseed. 19 Jun 1986. France: Béhoust, Yvelines.
- 2317 TJ Poprawski (8640). Adult, *Delia* sp. [Diptera: Anthomyiidae] on sugar beet. 14 Oct 1986. France: Béhoust, Yvelines.
- 2542 J Eilenberg (KVL 3) ← U Olesen. *Musca domestica* [Diptera: Muscidae]. Sep 1986. Denmark: Ribe, Filskov, Jutland.
- 2665 J Eilenberg (KVL 46). *Delia radicum* [Diptera: Anthomyiidae]. 14 Jun 1988. Denmark: Roskilde, Zealand.
- 2668 J Eilenberg (KVL 16). *Delia radicum* [Diptera: Anthomyiidae]. 25 Jul 1986. Denmark: Svanholm, Malmöhus.
- 2670 J Eilenberg (KVL 45). *Delia radicum* [Diptera: Anthomyiidae]. 14 Jun 1988. Denmark: Roskilde, Zealand.
- 2673 J Eilenberg (KVL 50). [Diptera: Syrphidae]. 2 Aug 1988. Denmark: Roskilde, Zealand.
- 2674 J Eilenberg (KVL 51). *Delia radicum* [Diptera: Anthomyiidae]. 28 Jul 1988. Denmark: Roskilde, Zealand.
- 2675 J Eilenberg (KVL 44). *Delia radicum* [Diptera: Anthomyiidae]. 14 Jun 1988. Denmark: Roskilde, Zealand.
- 2678 J Eilenberg (KVL 17). [Diptera: Anthomyiidae]. 31 Jul 1986. Denmark: Holmegaards Mose, Zealand.
- 3074 RI Carruthers and SB Krasnoff. Adult, *Delia antiqua* [Diptera: Anthomyiidae]. 9 Oct 1990. USA: Prattsburg, New York.
- 5952 A Bruun Jensen (KVL 98-10). Adult, *Musca domestica* [Diptera: Muscidae]. 1 Sep 1998. Denmark: Dyssekilde, Hundested, Zealand.
- 5953 A Bruun Jensen (KVL 98-12). Adult, *Musca domestica* [Diptera: Muscidae]. 1 Sep 1998. Denmark: Dyssekilde, Hundested, Zealand.
- 5954 A Bruun Jensen (KVL 98-18). Adult, [Diptera: Muscidae]. 16 Aug 1998. Denmark: Amager, Zealand.
- 6121 A Bruun Jensen (KVL 99-1). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Nordtoftedal, Farum, Zealand.
- 6122 A Bruun Jensen (KVL 99-2). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Nordtoftedal, Farum, Zealand.
- 6123 A Bruun Jensen (KVL 99-3). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Nordtoftedal, Farum, Zealand.
- 6124 A Bruun Jensen (KVL 99-5). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Nordtoftedal, Farum, Zealand.
- 6125 A Bruun Jensen (KVL 99-6). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6126 A Bruun Jensen (KVL 99-7). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6127 A Bruun Jensen (KVL 99-8). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6128 A Bruun Jensen (KVL 99-9). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6129 A Bruun Jensen (KVL 99-10). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.

Fungal Cultures

Entomophthora muscae *Entomophthora planchoniana*

- 6130 A Bruun Jensen (KVL 99-11). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6131 A Bruun Jensen (KVL 99-12). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Sigerslevøster, Zealand.
- 6132 A Bruun Jensen (KVL 99-13). Adult, *Musca domestica* [Diptera: Muscidae]. Sep 1998. Denmark: Kirke Såby, Zealand.
- 6133 A Bruun Jensen (KVL 99-14). Adult, *Musca domestica* [Diptera: Muscidae]. Sep 1998. Denmark: Kirke Såby, Zealand.
- 6134 A Bruun Jensen (KVL 99-15). Adult, *Musca domestica* [Diptera: Muscidae]. Sep 1998. Denmark: Kirke Såby, Zealand.
- 6135 A Bruun Jensen (KVL 99-16). Adult, *Musca domestica* [Diptera: Muscidae]. Sep 1998. Denmark: Kirke Såby, Zealand.
- 6136 A Bruun Jensen (KVL 99-17). Adult, *Musca domestica* [Diptera: Muscidae]. Sep 1998. Denmark: Kirke Såby, Zealand.
- 6140 A Bruun Jensen (KVL 99-22). Adult, *Musca domestica* [Diptera: Muscidae]. 20 Aug 1996. Denmark: Skævinge, Zealand.
- 6141 A Bruun Jensen (KVL 99-23). Adult, *Musca domestica* [Diptera: Muscidae]. 20 Aug 1996. Denmark: Skævinge, Zealand.
- 6164 A Bruun Jensen (KVL 99-4). Adult, *Musca domestica* [Diptera: Muscidae]. 7 Oct 1998. Denmark: Nordtoftedal, Farum, Zealand.
- 6165 A Bruun Jensen (KVL 99-21). Adult, *Musca domestica* [Diptera: Muscidae]. 20 Aug 1996. Denmark: Skævinge, Zealand.
- 6274 A Bruun Jensen ← I Klingen (NCRI 1-99). Female, *Delia radicum* [Diptera: Anthomyiidae]. Aug 1999. Norway: Ski, Akershus.
- 6701 A Bruun Jensen (KVL 00-92). [Diptera]. 29 Jun 2000. Denmark: Hundested, Zealand.
- 6706 A Bruun Jensen (KVL 99-75). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hundested, Zealand.
- 6707 A Bruun Jensen (KVL 99-93). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hagnstrup, Slangerup, Zealand.
- 6708 A Bruun Jensen (KVL 99-138). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hagnstrup, Slangerup, Zealand.
- 6709 A Bruun Jensen (KVL 99-139). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Sengeløse, Zealand.
- 6710 A Bruun Jensen (KVL 01-21). *Delia radicum* [Diptera: Anthomyiidae]. 29 Jun 2000. Denmark: Hundested, Zealand.
- 6711 A Bruun Jensen (KVL 01-24). *Delia radicum* [Diptera: Anthomyiidae]. 23 Jul 2000. Denmark: Ørslev, Zealand.
- 6712 A Bruun Jensen (KVL 01-37). *Botanophila fugax* [Diptera: Anthomyiidae]. 30 Aug 2000. Denmark: Hagnstrup, Slangerup, Zealand.
- 6713 A Bruun Jensen (KVL 99-80). *Musca domestica* [Diptera: Muscidae]. 11 Jul 1999. Denmark: Sverkilde, Zealand.
- 6714 A Bruun Jensen (KVL 99-72). *Musca domestica* [Diptera: Muscidae]. 11 Jul 1999. Denmark: Sverkilde, Zealand.
- 6715 A Bruun Jensen (KVL 99-74). *Musca domestica* [Diptera: Muscidae]. 11 Jul 1999. Denmark: Sverkilde, Zealand.
- 6716 A Bruun Jensen (KVL 99-95). *Musca domestica* [Diptera: Muscidae]. 11 Jul 1999. Denmark: Sverkilde, Zealand.
- 6717 A Bruun Jensen (KVL 99-84). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hagnstrup, Slangerup, Zealand.
- 6811 A Bruun Jensen (KVL 99-85). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hagnstrup, Slangerup, Zealand.
- 6812 A Bruun Jensen (KVL 99-74). *Musca domestica* [Diptera: Muscidae]. 11 Jul 1999. Denmark: Sverkilde, Zealand.
- 6813 A Bruun Jensen (KVL 99-110). *Musca domestica* [Diptera: Muscidae]. 7 Oct 1999. Denmark: Knardrup, Zealand.
- 6814 A Bruun Jensen (KVL 99-109). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Hagnstrup, Slangerup, Zealand.
- 6815 A Bruun Jensen (KVL 99-102). *Delia radicum* [Diptera: Anthomyiidae]. 13 Jul 1999. Denmark: Sengeløse, Zealand.
- 6818 A Bruun Jensen (KVL 01-39). *Delia radicum* [Diptera: Anthomyiidae]. 18 Jul 2000. Denmark: Sengeløse, Zealand.
- 6821 A Bruun Jensen (KVL 01-22). *Delia radicum* [Diptera: Anthomyiidae]. 18 Jul 2000. Denmark: Sengeløse, Zealand.
- 6918 A Bruun Jensen (KVL 99-92). *Coenosia tigrina* [Diptera: Muscidae]. 29 Jul 1999. Denmark: Ørslev, Zealand.
- 7371 AE Hajek (04 NY 1-1-1). [Diptera]. 2 Jun 2004. USA: Yellow Barn State Forest, Dryden, New York.
- Entomophthora planchoniana*** Cornu
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae
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- 6251 F Freimoser (ETH 16b). *Ovatus crataegarius* [Homoptera: Aphididae] on *Mentha* sp. (Lamiaceae). Rec'd 17 Aug 1999. Denmark: in garden, Hundested, Zealand.
- 6252 F Freimoser (ETH 16c). *Ovatus crataegarius* [Homoptera: Aphididae] on *Mentha* sp. (Lamiaceae). Rec'd 17 Aug 1999. Denmark: in garden, Hundested, Zealand.

Entomophthora scatophagae***Entomophthora thripidum*****Fungal Cultures*****Entomophthora scatophagae* Giard**

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 6704 A Bruun Jensen (KVL 00-60). *Scatophaga stercoraria* [Diptera: Scatophagidae]. 3 May 2000. Denmark: Tuse Næs, Zealand.
- 6705 A Bruun Jensen (KVL 00-61). *Scatophaga stercoraria* [Diptera: Scatophagidae]. 3 May 2000. Denmark: Tuse Næs, Zealand.

***Entomophthora schizophorae* S Keller & Wilding in**

S Keller

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 2540 J Eilenberg (KVL 1). *Psila rosae* [Diptera: Psilidae]. Aug 1984. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2541 J Eilenberg (KVL 2). *Psila rosae* [Diptera: Psilidae]. Sep 1985. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2667 J Eilenberg (KVL 13). *Psila rosae* [Diptera: Psilidae]. 23 Jun 1986. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 5348 DW Watson. *Musca domestica* [Diptera: Muscidae]. Aug 1987. USA: Seward, Nebraska.
- 6137 A Bruun Jensen (KVL 99-18). Adult, *Musca domestica* [Diptera: Muscidae]. 14 Aug 1996. Denmark: Roskilde, Zealand.
- 6138 A Bruun Jensen (KVL 99-19). Adult, *Musca domestica* [Diptera: Muscidae]. 14 Aug 1996. Denmark: Roskilde, Zealand.
- 6139 A Bruun Jensen (KVL 99-20). Adult, *Musca domestica* [Diptera: Muscidae]. 14 Aug 1996. Denmark: Roskilde, Zealand.
- 6142 A Bruun Jensen (KVL 99-24). Adult, *Musca domestica* [Diptera: Muscidae]. 10 Oct 1998. Denmark: Annisse, Zealand.
- 6143 A Bruun Jensen (KVL 99-25). Adult, *Musca domestica* [Diptera: Muscidae]. 10 Oct 1998. Denmark: Annisse, Zealand.
- 6703 A Bruun Jensen (KVL 01-38). *Pollenia* sp. [Diptera: Calliphoridae]. 2 Oct 2000. Denmark: Hundested, Zealand.
- 6816 A Bruun Jensen (KVL 00-94). *Pollenia* sp. [Diptera: Calliphoridae]. 2 Oct 2000. Denmark: Hundested, Zealand.
- 6817 A Bruun Jensen (KVL 00-93). *Pollenia* sp. [Diptera: Calliphoridae]. 4 Oct 2000. Denmark: Hundested, Zealand.

***Entomophthora syrphi* Giard**

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 5955 A Bruun Jensen (KVL 98-19). Adult, *Triglyphus*

primus [Diptera: Syrphidae]. 21 Aug 1998. Denmark: Zealand.

- 6702 A Bruun Jensen (KVL 01-36). *Platycheirus clypeatus* [Diptera: Syrphidae]. 9 Aug 2000. Denmark: Hegenstrup, Slangerup, Zealand.
- 6819 A Bruun Jensen (KVL 01-35). *Melanostoma scalare* [Diptera: Syrphidae]. Summer 2000. Denmark: Kalø, Jutland.
- 6820 A Bruun Jensen (KVL 01-34). *Melanostoma scalare* [Diptera: Syrphidae]. Summer 2000. Denmark: Kalø, Jutland.

***Entomophthora thripidum* Samson, Ramakers &**

Oswald

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 5868 A Grundschober (ETH 601). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.
- 6517 F Freimoser (ETH 602). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.
- 6518 F Freimoser (ETH 603). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.
- 6519 F Freimoser (ETH 604). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.
- 6520 F Freimoser (ETH 605). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.
- 6521 F Freimoser (ETH 607). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig. Re-isolate of ETH 603 [=ARSEF 6518] after passage through *Thrips tabaci*.
- 6522 F Freimoser (ETH 608). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig. Re-isolate of ETH 603 [=ARSEF 6518] after passage through *Thrips tabaci*.
- 6525 F Freimoser (ETH 606). *Thrips tabaci* [Thysanoptera: Thripidae]. 21 Apr 1998. Germany: Laboratory colony, BBA, Institut für Pflanzenschutz im Gartenbau, Braunschweig, Braunschweig.

Fungal Cultures

Erynia aquatica

Eryniopsis ptychopterae

Erynia aquatica (Anderson & Ringo in Anderson & Anagnostakis) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Vegetative growth of this species is very sparse and slow. Strains should be in liquid tissue culture media incubated at 0-4°C.

- 750 RA Humber and RG Lawlor. Adult, *Aedes* sp. [Diptera: Culicidae]. Acc'd 10 Dec 1987. USA: Cambridge, New York.
764 RA Humber and RG Lawlor. Pupa, [Diptera: Culicidae]. Jun 1982. USA: Memorial Rock, Sapsucker Woods, Ithaca, New York.

Erynia conica (Nowakowski) Remaudière & Hennebert
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 1439 N Hywel-Jones (H84178-2). *Simulium* sp. [Diptera: Simuliidae]. Jun 1984. United Kingdom: Fingle Bridge (River Teign), Devon, England.
1752 S Keller (527). [Diptera: Simuliidae]. 24 Oct 1984. Switzerland.
1753 S Keller (528). [Diptera: Simuliidae]. 24 Oct 1984. Switzerland.
2274 EL Cuebas-Incle (III). Adult, [Diptera: Chironomidae]. 2 Oct 1985. USA: Six Mile Creek, Brooktondale, New York.
2275 EL Cuebas-Incle (IV). Gravid female, [Diptera: Simuliidae]. 2 Oct 1985. USA: Six Mile Creek, Brooktondale, New York.
2405 RI Samuels. Adult, [Diptera: Chironomidae]. Sep 1986. United Kingdom: Avon, England.

Erynia curvispora (Nowakowski) Remaudière & Hennebert
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 1754 S Keller (529). [Diptera: Simuliidae]. 24 Oct 1984. Switzerland.
3229 M Nadeau (222). Adult, [Diptera: Simuliidae]. 19 Jun 1990. Canada: Réserve Faunique du Saint, Maurice, Québec.
3244 M Nadeau (241). Adult, [Trichoptera]. 20 Jun 1990. Canada: Réserve Faunique du Saint, Maurice, Québec.

Erynia ovispora (Nowakowski) Remaudière & Hennebert
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 399 S Keller (100). [Diptera: Psychodidae]. 12 Jun 1978. Switzerland.
400 S Keller (102). [Diptera: Psychodidae]. 12 Jun 1978. Switzerland.

Erynia rhizospora (Thaxter) Remaudière & Hennebert
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 219 LS Bauer. Adult, [Trichoptera]. Jun 1978. USA: Dover-Foxcroft, Maine.
801 EL Cuebas-Incle. Adult, [Trichoptera]. 24 Jul 1982. USA: outlet, Dryden Lake, Dryden, New York.
1440 RA Humber. Adult, [Trichoptera]. 2 Jul 1984. United Kingdom: Castle Drago (River Teign), Devon, England.
1441 RA Humber. Adult, [Trichoptera]. 2 Jul 1984. United Kingdom: Castle Drago (River Teign), Devon, England.
1442 E Descals (C-1756-4) and RA Humber. Adult, [Trichoptera]. 27 Jun 1984. Wales: polluted stream, Llanfair Caereinion, Powys.
1443 RA Humber. Adult, [Trichoptera]. 21 Jun 1984. United Kingdom: Steps Bridge, Devon, England.
2276 EL Cuebas-Incle (V). Adult, [Trichoptera]. 26 Jul 1985. USA: Michigan Hollow, Danby, New York.
2407 RI Samuels ← TB Clark and TC Reeves. Adult, [Trichoptera: Hydropsychidae]. Aug 1986. United Kingdom: Fingle Bridge (River Teign), Devon, England.

Erynia sciarae (Olive) Ben-Ze'ev & RG Kenneth
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 1870 N Wilding (80) ← G Remaudière. Adult, [Diptera: Mycetophilidae] on soil. 30 Sep 1976. Location not specified.

Eryniopsis caroliniana (Thaxter) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 640 [ARSEF 213 (deaccessioned)] S Keller (69). *Tipula paludosa* [Diptera: Tipulidae]. Rec'd 10 Aug 1981. Switzerland.
641 [ARSEF 424 (lost)] S Keller (41). *Tipula paludosa* [Diptera: Tipulidae]. Rec'd 10 Aug 1981. Switzerland.
642 [ARSEF 212 (deaccessioned)] S Keller (65). *Tipula paludosa* [Diptera: Tipulidae]. Rec'd 10 Aug 1981. Switzerland.

Eryniopsis ptychopterae S Keller & Eilenberg
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 2535 J Eilenberg (KVL 5). *Ptychoptera contaminata* [Diptera: Ptychopteridae]. 25 Aug 1986. Denmark: Kattinge Vig, Roskilde.
2671 J Eilenberg (KVL 48). *Ptychoptera contaminata* [Diptera: Ptychopteridae]. 9 Aug 1988. Denmark: Kattinge Vig, Roskilde.

Furia* sp.**Furia virescens*****Fungal Cultures*****Furia* sp.**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

6211 Acc'd 17 Feb 2000.

***Furia americana* (Thaxter) Humber**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 742 [CNPAF 82-3-10-01; CP 32] RS Soper. [Diptera]. 10 Mar 1982. Brazil: CNPAF, Goiânia, Goiás.
1240 [CNPAF 84-03-30-4B; CP 140] DW Roberts. [Diptera]. 30 Mar 1984. Brazil: Francisco Beltrão, Paraná.
1242 [CNPAF 84-03-30-1A; CP 142] RA Daoust, BP Magalhães and DW Roberts. [Diptera]. 30 Mar 1984. Brazil: Francisco Beltrão, Paraná.
2192 [CNPAF 86-4-24; CP 202] SM dos Santos. [Diptera]. 24 Apr 1986. Brazil: CNPAF, Goiânia, Goiás.
2194 [CNPAF 86-5-21-A; CP 204] SM dos Santos. [Diptera]. 21 May 1986. Brazil: CNPAF, Goiânia, Goiás.

***Furia gastropachae* (Raciborski) Filotas, Hajek &**

Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Synonym: *Furia crustosa* (MacLeod & Tyrrell) Humber

- 2906 FPMI. [Lepidoptera]. Acc'd 3 Apr 1990. Canada.
5541 M Filotas (NY I1). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. Apr 1997. USA: Tug Hill Plateau, Richland, New York. Host infected in laboratory upon exposure to germinating resting spores in field collected soil.
5542 M Filotas (NY I2). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. Apr 1997. USA: Tug Hill Plateau, Richland, New York. Host infected in laboratory upon exposure to germinating resting spores in field collected soil.
5543 M Filotas (NY V). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. Apr 1997. USA: Tug Hill Plateau, Richland, New York. Host infected in laboratory upon exposure to germinating resting spores in field collected soil.
5544 M Filotas (NY Z). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. Apr 1997. USA: Tug Hill Plateau, Richland, New York. Host infected in laboratory upon exposure to germinating resting spores in field collected soil.
5545 M Filotas (MD97 S1-1). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 6 Jun 1997. USA: Snow Hill, Maryland.
5546 M Filotas (MD97 S1-2). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 6 Jun 1997. USA: Snow Hill, Maryland.
5547 M Filotas (CTLD A). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 19 Jun 1997. USA: State University of New York campus, Cortland, New York.

5869 [Forest Pest Management Institute FPMI 713] M Filotas. *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 9 Jun 1982. Canada: Webbwood, Ontario.

5870 [Forest Pest Management Institute FPMI 922-1a] M Filotas. *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 20 Jun 1986. Canada: New Liskeard, Ontario.

5871 [Forest Pest Management Institute FPMI 922-2a] M Filotas. *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 20 Jun 1986. Canada: New Liskeard, Ontario.

5872 [Forest Pest Management Institute FPMI 922-3a] M Filotas. *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 20 Jun 1986. Canada: New Liskeard, Ontario.

8926 [ERL 1539b] VS Gouli (FTC). *Malacosoma disstria* [Lepidoptera: Lasiocampidae]. 2007. USA: Vermont.

***Furia ithacensis* (Kramer) Humber**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

1339 S Balazy (1561). [Diptera: Empididae] attached to the leaves of arboraceous plants. 22 May 1983. Poland: Bialowieza National Park.

1340 S Balazy (1561a). [Diptera: Empididae] attached to the leaves of arboraceous plants. 22 May 1983. Poland: Bialowieza National Park.

8606 KT Hodge. Rec'd 14 Jun 2007.

***Furia neopyralidarum* (Ben-Ze'ev) Humber**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

1145 M Shimazu (F-356). [Lepidoptera]. Acc'd 4 Apr 1984. Japan: Ibaraki Prefecture.

***Furia pieris* (Li & Humber) Humber**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

781 BF Usher. *Pieris rapae* [Lepidoptera: Pieridae]. 27 Aug 1982. USA: Ellis Hollow Rd, Community Gardens, Ithaca, New York.

***Furia virescens* (Thaxter) Humber**

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

394 S Keller (24). *Notostira elongata* [Hemiptera: Miridae]. 9 Oct 1975. Switzerland.

427 S Keller (250). Larva, [Lepidoptera]. Rec'd 6 Feb 1980. Switzerland.

470 S Keller (251). [Lepidoptera: Noctuidae]. Rec'd 27 May 1980. Switzerland.

1129 S Keller (416). [Lepidoptera: Noctuidae]. 18 Aug 1982. Switzerland.

Fungal Cultures

Macrobiotophthora vermicola *Pandora blunckii*

Macrobiotophthora vermicola (McCulloch) Tucker
[Entomophthoromycotina: Entomophthorales]

Ancylistaceae

- 650 EC Bernard. *Cruznema lambdiense* [Rhabditida: Rhabditidae]. 1977. USA: Tennessee.

Massospora cicadina Peck

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.

- 374 RS Soper. *Magicicada septendecim* [Homoptera: Cicadidae]. 16 Jun 1979. USA: Mohawk Lake Preserve, New Paltz, New York.

***Neozygites* sp.**

[Entomophthoromycotina: Entomophthorales]

Neozygitaceae. This culture is provided as hyphal bodies in a liquid tissue culture medium. Spores may be induced by plating hyphal bodies on solid media. Taxonomic criteria separating *Neozygites* species from mites are too poorly understood to allow specific identifications.

- 662 RA Humber ← DR Smitley. *Tetranychus urticae* [Acari: Tetranychidae]. 19 Oct 1981. USA: Raleigh, North Carolina.

***Neozygites floridana*(?)** (Weiser & Muma) Re-

maudière & S Keller

[Entomophthoromycotina: Entomophthorales]

Neozygitaceae

- 5201 DW Roberts (1). *Tetranychus urticae* [Acari: Tetranychidae]. Rec'd 6 Jul 1996. USA: Laboratory culture, Ithaca, New York.

- 5202 DW Roberts (2). *Tetranychus urticae* [Acari: Tetranychidae]. Rec'd 6 Jul 1996. USA: Laboratory culture, Ithaca, New York.

- 5376 DW Roberts (0). *Tetranychus urticae* [Acari: Tetranychidae]. Rec'd 3 Dec 1996. USA: Laboratory culture, Ithaca, New York.

- 6219 I Delalibera Junior (AB 10,11). Adult, female, *Mononychellus tanajoa* [Acari: Tetranychidae]. 30 Aug 1997. Brazil: Cruz das Almas, Bahia.

- 6220 I Delalibera Junior (AC 16). Adult, female, *Mononychellus tanajoa* [Acari: Tetranychidae]. 30 Aug 1997. Brazil: Cruz das Almas, Bahia.

- 6221 I Delalibera Junior (L 13). Adult, female, *Mononychellus tanajoa* [Acari: Tetranychidae]. 30 Aug 1997. Brazil: Cruz das Almas, Bahia.

Neozygites parvispora (DM MacLeod & KP Carl)

Remaudière & S Keller

[Entomophthoromycotina: Entomophthorales]

Neozygitaceae

- 5620 A Grundschober (301). *Thrips tabaci* [Thysanoptera: Thripidae] on *Allium porrum*. 17 Oct 1996. Switzer-

land: organic vegetable farm in Winkel, Bülach, Zurich.

- 5621 A Grundschober (302). *Thrips tabaci* [Thysanoptera: Thripidae] on *Allium porrum*. 17 Oct 1996. Switzerland: organic vegetable farm in Winkel, Bülach, Zurich.
6276 Acc'd 7 Jun 2000.
6277 Acc'd 7 Jun 2000.
6278 Acc'd 7 Jun 2000.
6279 Acc'd 7 Jun 2000.
6280 Acc'd 7 Jun 2000.

Neozygites tetranychii Weiser

[Entomophthoromycotina: Entomophthorales]

Neozygitaceae. This culture is provided as hyphal bodies in a liquid tissue culture medium. Spores may be induced by plating hyphal bodies on solid media. Identification of this species is provisional because of correspondence with the source of the strain and the original description of the species. This species was published without a Latin diagnosis and must still be validated nomenclaturally.

- 2677 J Weiser. *Tetranychus althaea* [Acari: Tetranychidae]. 8 Nov 1988. Czech Republic: Dvory n. Zitavou.

***Pandora* sp.**

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 3201 GW Riethmacher (EB6). *Plutella xylostella* [Lepidoptera: Plutellidae]. 13 May 1989. Philippines: La Trinidad, Benguet.

- 5812 [Diptera]. 10 Aug 1998. Denmark.

Pandora blunckii (Lakon ex Zimmerman) Humber

[Entomophthoromycotina: Entomophthorales]

Entomophthoraceae

- 217 [ATCC 34698; CBS 194.77; IMI 211910] G Zimmermann (2). Larva, *Plutella maculipennis* [Lepidoptera: Plutellidae]. 27 Mar 1978. Germany: Gross-Bieberau, Darmstadt, Hesse. CULTURE EX NEOTYPE.

- 915 S Keller (426). *Athalia rosae* [Coleoptera: Elateridae]. 1 Sep 1982. Switzerland.

- 917 S Keller (425). *Athalia rosae* [Coleoptera: Elateridae]. 1 Sep 1982. Switzerland: Zürich.

- 920 S Keller (430). *Athalia rosae* [Coleoptera: Elateridae]. 1 Sep 1982. Switzerland: Zürich.

- 1000 J Aoki (Ent. 30) ← H Tomiyama. *Plutella xylostella* [Lepidoptera: Plutellidae]. Nov 1977. Japan: Fuchu, Tokyo Prefecture.

- 1004 [FPMI 752] J Aoki (Ent. 35) ← M Shimazu. Rec'd 7 Nov 1983. Japan: Chikugo, Fukuoka Prefecture.

- 1715 S Keller (514). *Athalia rosae* [Coleoptera: Elateridae]. 3 Oct 1984. Switzerland: Reckenholz, Zurich.

- 1716 S Keller (515). *Athalia rosae* [Coleoptera: Elateridae]. 3 Oct 1984. Switzerland: Reckenholz, Zurich.

- 1717 S Keller (516). *Athalia rosae* [Coleoptera: Elateridae]. 3 Oct 1984. Switzerland: Reckenholz, Zurich.

- 1718 S Keller (517). *Athalia rosae* [Coleoptera: Elateridae]. 3 Oct 1984. Switzerland: Reckenholz, Zurich.
- 2824 GW Riethmacher (EB4). *Plutella xylostella* [Lepidoptera: Plutellidae]. 8 Apr 1989. Philippines: La Trinidad, Benguet. ARSEF 2776, *Fusarium* sp., also isolated from Riethmacher # EB4.
- 3075 DG Holdom. *Plutella* sp. [Lepidoptera: Plutellidae]. 27 Apr 1990. Australia: Lockyer Valley, Queensland.
- 3200 GW Riethmacher (EB3). *Plutella xylostella* [Lepidoptera: Plutellidae]. 8 Apr 1989. Philippines: La Trinidad, Benguet.
- 3202 GW Riethmacher (EB7). *Plutella xylostella* [Lepidoptera: Plutellidae]. 8 Jun 1989. Philippines: La Trinidad, Benguet.
- 6293 R Alatorre Rosas (Jav.1). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6294 R Alatorre Rosas (Jav.3). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6295 R Alatorre Rosas (Jav.4). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6296 R Alatorre Rosas (Jav.6). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6297 R Alatorre Rosas (Jav.7). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6298 R Alatorre Rosas (Jav.8). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6299 R Alatorre Rosas (Jav.9). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6300 R Alatorre Rosas (Jav.10). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6301 R Alatorre Rosas (Jav.11). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6302 R Alatorre Rosas (Jav.12). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6304 R Alatorre Rosas (Andres.2). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6305 R Alatorre Rosas (Andres.3). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6306 R Alatorre Rosas (Andres.5). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6307 R Alatorre Rosas (Andres.6). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.

- 6308 R Alatorre Rosas (Andres.7). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6309 R Alatorre Rosas (Bujanos.1). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6310 R Alatorre Rosas (Bujanos.3). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6311 R Alatorre Rosas (Bujanos.4). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6312 R Alatorre Rosas (Bujanos.5). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6316 R Alatorre Rosas (Mina.19). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- Pandora delphacis* (Hori) Humber**
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae
- 134 M Shimazu. *Nilaparvata lugens* [Homoptera: Delphacidae]. 1975. Japan: Fukuoka, Fukuoka Prefecture.
- 458 RS Soper. *Nephrotettix cincticeps* [Homoptera: Cicadellidae]. 5 May 1980. Philippines: IRRI, Los Baños, Manila.
- 459 RS Soper. *Nephrotettix cincticeps* [Homoptera: Cicadellidae]. 5 May 1980. Philippines: IRRI, Los Baños, Manila.
- 460 RS Soper. *Nephrotettix cincticeps* [Homoptera: Cicadellidae]. 5 May 1980. Philippines: IRRI, Los Baños, Manila.
- 461 RS Soper. *Nephrotettix cincticeps* [Homoptera: Cicadellidae]. 5 May 1980. Philippines: IRRI, Los Baños, Manila.
- 478 RS Soper (B). *Nephrotettix cincticeps* [Homoptera: Cicadellidae]. 5 May 1980. Philippines: IRRI, Los Baños, Manila.
- 575 RS Soper (8132-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 2 Mar 1981. Indonesia: Desa Dasan Tereng Village, Kecamatan Narmada District, Lombok Island.
- 579 RS Soper (8132-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 2 Mar 1981. Indonesia: Desa Dasan Tereng Village, Kecamatan Narmada District, Lombok Island.
- 580 RS Soper (81223-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 23 Feb 1981. Indonesia: Bangun Village, Kecamatan Tanjung, Deliserdang District, Sumatera Utara, Sumatra.
- 593 [CSIRO EM654] RS Soper (8133-2). *Sogatella furcifera* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: Pangkep Kaba, Sulawesi Selatan, Celebes.

- 603 RS Soper (8133-2). *Sogatella furcifera* [Homoptera: Delphacidae]. 3 Mar 1981. Indonesia: Pangkep Kaba, Sulawesi Selatan, Celebes.
- 657 DW Roberts (101081-4). *Nilaparvata lugens* [Homoptera: Delphacidae]. 10 Oct 1981. PR China: Jansui, Jiangsu.
- 659 DW Roberts (101081-6-2). *Recilia dorsalis* [Homoptera: Cicadellidae]. 10 Oct 1981. PR China: Jansui, Jiangsu.
- 660 DW Roberts (101081-6-2). *Recilia dorsalis* [Homoptera: Cicadellidae]. 10 Oct 1981. PR China: Jiangsu.
- 664 DW Roberts (100881-4-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 8 Oct 1981. PR China: Chansha, Hunan.
- 665 DW Roberts (102181-9). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 666 DW Roberts (102181-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 667 DW Roberts (102181-6). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 668 DW Roberts (101081-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 10 Oct 1981. PR China: Nanjing, Jiangsu.
- 669 DW Roberts (102181-2). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 670 DW Roberts (101381-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 13 Oct 1981. PR China: Hangzhou, Zhejiang.
- 672 DW Roberts (101081-5-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 10 Oct 1981. PR China: Nanjing, Jiangsu.
- 673 DW Roberts (100981-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 9 Oct 1981. PR China: Nanjing, Jiangsu.
- 674 DW Roberts (100981-4). *Nilaparvata lugens* [Homoptera: Delphacidae]. 9 Oct 1981. PR China: Nanjing, Jiangsu.
- 676 DW Roberts (102181-5). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 682 DW Roberts (101081-2-3). *Nilaparvata lugens* [Homoptera: Delphacidae]. 10 Oct 1981. PR China: Nanjing, Jiangsu.
- 686 DW Roberts (101081-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 10 Oct 1981. PR China: Jiangsu.
- 698 *Nilaparvata lugens* [Homoptera: Delphacidae]. 11 Apr 1981. PR China: Wuhan, Hupei.
- 713 DW Roberts (102181-4). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 716 DW Roberts (100981-1). *Nilaparvata lugens* [Homoptera: Delphacidae]. 9 Oct 1981. PR China: Nanjing, Jiangsu.
- 1101 J Aoki (Ent. 36) ← M Shimazu. Acc'd 14 Mar 1984. Japan: Chikugo, Fukuoka Prefecture.
- 1124 M Shimazu (F-16). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 29 Mar 1984. Japan: Fukuoka Prefecture.
- 1132 M Shimazu (F-32). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 3 Apr 1984. Japan: Fukuoka Prefecture.
- 1133 M Shimazu (F-33). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 3 Apr 1984. Japan: Fukuoka Prefecture.
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- 1265 J Aoki (Ent. 7) ← H Tomiyama. *Mamestra brassicae* [Lepidoptera: Noctuidae]. Nov 1975. Japan: Fuchu, Tokyo Prefecture.
- 1268 M Shimazu (F-56). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 3 May 1984. Japan: Chikugo, Fukuoka Prefecture.
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- 2092 DG Holdom (260186-1). *Sogatella furcifera* [Homoptera: Delphacidae]. 26 Jan 1986. Indonesia: CIBA-GEIGY R & D Station, Cikampek, Jawa Barat, Java.

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- 2094 DG Holdom (270186). *Sogatodes pusanus* [Homoptera: Delphacidae]. 27 Jan 1986. Indonesia: CIBA-GEIGY R & D Station, Cikampek, Jawa Barat, Java.
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- 2409 DG Holdom (310187-1). *Sogatella furcifera* [Homoptera: Delphacidae]. 31 Jan 1987. Indonesia: CIBA-GEIGY R & D Station, Cikampek, Jawa Barat, Java.
- 3062 M Wheeler. [Hemiptera: Miridae]. 13 Aug 1990. USA: Snapp field # 2D, Newark Valley, New York.
- 3072 M Wheeler ← H Firstencel. *Empoasca fabae* [Homoptera: Cicadellidae]. 7 Aug 1990. USA: Snapp field # 8A, Newark Valley, New York.
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- 3094 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 11 Sep 1990. USA: Snapp field # 4G, Newark Valley, New York.
- 3095 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 10 Sep 1990. USA: Hoffman field # 2B, Catherine, New York.
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- 3107 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 28 Sep 1990. USA: Hoffman field # 1B, Catherine, New York.
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Pandora dipterigena (Thaxter) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 131 N Wilding (1). [Diptera]. 24 Aug 1976. USA: Rogers Farm, Stillwater, Maine.
- 397 [ARSEF ?1066] S Keller (92). [Diptera: Nematocera]. 5 Jun 1978. Switzerland.
- 1422 S Balazy (1496c). [Diptera: Brachycera] attached to the underside of lime tree leaf in deciduous forest undergrowth. 4 Jun 1982. Poland: Bialowieza National Park.
- 1720 S Keller (521). [Diptera]. 18 Oct 1984. Switzerland: Trasadingen, Schaffhausen.
- 1887 M Shimazu. [Diptera: ?Sciaridae]. 1 Jun 1985. USA: Allegany State Park, Salamanca, New York.
- 1921 M Shimazu (FE3). [Diptera]. 20 Jun 1985. USA: Allegany State Park, Salamanca, New York.
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- 2406 RI Samuels. Adult, [Trichoptera]. Aug 1986. United Kingdom: Avon, England.

Pandora heteropterae (Balazy) S Keller
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 9266 JJ Hannam. *Lygus lineolaris* [Hemiptera: Miridae] collected from weeds on the edge of cornfield. 1 Sep 2008. USA: Johnson County, Arkansas. 35°23'34" N, 93°42'03" W.

Pandora kondoiensis (Milner, Mahon, & Brown)
Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 369 [ARSEF 825] CSIRO (EM507) ← R Teakle. *Acyrthosiphon kondoi* [Homoptera: Aphididae]. 5 Oct 1977. Australia: Brisbane, Queensland.
- 825 [ARSEF 369] CSIRO (EM507) ← R Teakle. *Acyrthosiphon kondoi* [Homoptera: Aphididae]. 5 Oct 1977. Australia: Brisbane, Queensland.
- 828 CSIRO (EM598) ← RD Hughes. *Acyrthosiphon kondoi* [Homoptera: Aphididae] on lucerne. 31 Jul 1980. Australia: Dubbo, New South Wales.
- 836 CSIRO (EM635) ← G Lutton. *Acyrthosiphon kondoi* [Homoptera: Aphididae] on lucerne. 29 Sep 1981. Australia: 2 km SW of Gundagai, New South Wales.
- 837 CSIRO (EM600) ← RD Hughes. *Acyrthosiphon kondoi* [Homoptera: Aphididae] on lucerne. 31 Jul 1980. Australia: Dubbo, New South Wales.

Pandora neoaphidis (Remaudière & Hennebert) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 78 RG Kenneth (3072) or (E.a. 11) ← A Uziel. [Homop-

- tera: Aphididae] on *Solanum hirsutum*. Mar 1976. Israel: potato field, Achuzam.
- 128 [IPLB 52] JP Latgé and G Remaudière. *Aphis* sp. [Homoptera: Aphididae] on *Cornus* sp. [Cornaceae]. 26 Aug 1976. Canada: Saint-Gédéon, Québec.
- 181 FR Holbrook. *Macrosiphum euphorbiae* [Homoptera: Aphididae]. 9 Aug 1977. USA: Maine.
- 381 RS Soper. [Homoptera: Aphididae]. 26 Feb 1979. Australia.
- 608 I Majchrowicz (80). *Aphis fabae* [Homoptera: Aphididae]. Jul 1980. Poland: Szczecin.
- 609 I Majchrowicz (81). *Aphis fabae* [Homoptera: Aphididae]. Jul 1980. Poland: Szczecin.
- 610 I Majchrowicz (82). *Aphis fabae* [Homoptera: Aphididae]. Jul 1980. Poland: Szczecin.
- 611 I Majchrowicz (87). *Aphis fabae* [Homoptera: Aphididae]. Aug 1980. Poland: Szczecin.
- 612 I Majchrowicz (88). *Aphis fabae* [Homoptera: Aphididae]. Aug 1980. Poland: Szczecin.
- 613 I Majchrowicz (90). *Aphis fabae* [Homoptera: Aphididae]. Aug 1980. Poland: Szczecin.
- 614 I Majchrowicz (91). *Aphis fabae* [Homoptera: Aphididae]. Aug 1980. Poland: Szczecin.
- 636 I Majchrowicz (102). *Aphis fabae* [Homoptera: Aphididae]. 3 Jul 1981. Poland: Szczecin.
- 637 I Majchrowicz (103). *Aphis fabae* [Homoptera: Aphididae]. 6 Jul 1981. Poland: Stanpanel.
- 638 [CSIRO EM653] I Majchrowicz (104). *Aphis fabae* [Homoptera: Aphididae]. 16 Jul 1981. Poland: Gumience, Szczecin.
- 639 I Majchrowicz (105). *Aphis fabae* [Homoptera: Aphididae]. 18 Jul 1981. Poland: Gryfino, Szczecin.
- 827 CSIRO (EM717) ← RJ Huppertz. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 11 Jan 1982. Australia: 30 km from Deniliquin, Echuca, New South Wales.
- 829 CSIRO (EM736) ← LT Woolcock. *Hyperomyzus lactucae* [Homoptera: Aphididae]. 29 Nov 1982. Australia: Murwillumbah, New South Wales.
- 830 CSIRO (EM723) ← RJ Huppertz. *Acyrtosiphon pisum* [Homoptera: Aphididae]. Fall 1982. Australia: Hamilton, Victoria.
- 833 [CSIRO EM739] RJ Milner. *Hyperomyzus lactucae* [Homoptera: Aphididae]. 8 Nov 1982. Chile: airport, Easter Island.
- 835 CSIRO (EM633) ← L Shu-Sheng. *Hyperomyzus lactucae* [Homoptera: Aphididae] on *Sonchus* sp. 18 Jun 1981. Australia: Black Mountain, Canberra, Australian Capital Territory.
- 838 CSIRO (EM670) ← G Lutton. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 13 Apr 1982. Australia: Murrumbateman, New South Wales.
- 993 J Aoki (Ent. 25) ← K Nakamura. *Uroleucon formosanus* [Homoptera: Aphididae]. Jul 1977. Japan: Hino, Tokyo Prefecture.
- 1134 M Shimazu (F-36). *Macrosiphum akebiae* [Homoptera: Aphididae]. Acc'd 3 Apr 1984. Japan: Fukuoka Prefecture.
- 1137 M Shimazu (F-54). *Dactynotus formosanus* [Homoptera: Aphididae]. Acc'd 3 Apr 1984. Japan: Tokyo Prefecture.
- 1570 DW Roberts ← F Messina. *Lygus* sp. [Hemiptera: Miridae] on cowpea. 31 Aug 1984. USA: Ithaca, New York.
- 1596 I Majchrowicz (34). Pterygotes, *Hyalopterus pruni* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France.
- 1597 I Majchrowicz (37). Apterygotes, *Sitobion* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984.
- 1598 I Majchrowicz (50). Pterygotes, *Acyrtosiphon pisum* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: Bezreus, Avignon.
- 1600 I Majchrowicz (164). Pterygotes, *Myzus persicae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. Portugal: nr. Trofa.
- 1601 I Majchrowicz (170). Apterygotes, *Myzus* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. Spain: nr. St. Amalia.
- 1602 I Majchrowicz (172). Apterygotes, *Myzus* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. Spain: nr. St. Amalia.
- 1603 I Majchrowicz (178). Apterygotes, *Acyrtosiphon pisum* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. Spain: nr. St. Amalia.
- 1604 I Majchrowicz (201). Apterygotes, *Sitobion* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1605 I Majchrowicz (211). Pterygotes, *Acyrtosiphon pisum* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1606 I Majchrowicz (216). Apterygotes, *Aphis fabae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1607 I Majchrowicz (224). Apterygotes, *Macrosiphum* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1609 I Majchrowicz (230). Apterygotes, *Acyrtosiphon pisum* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1610 I Majchrowicz (236). Apterygotes, *Aphidula* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1611 I Majchrowicz (246). Apterygotes, *Aphis fabae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1612 I Majchrowicz (251). Apterygotes, *Macrosiphum* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1613 I Majchrowicz (257). Pterygotes, *Brevicoryne brasicae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.

- 1615 I Majchrowicz (263). Apterogotes, *Aphidula* sp. [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1616 I Majchrowicz (269). Apterogotes, *Brevicoryne brassicae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1617 I Majchrowicz (275). Apterogotes, *Brevicoryne brassicae* [Homoptera: Aphididae]. Acc'd 19 Sep 1984. France: La Minière.
- 1618 I Majchrowicz (260 4.08). Acc'd 19 Sep 1984. Location not specified.
- 1695 IL Sivcev (217). Alate, [Homoptera: Aphididae] on cabbage. 10 Jul 1984. Yugoslavia: PKB Commune, E. Belgrade.
- 1696 IL Sivcev (R-1). Alate, [Homoptera: Aphididae] on roses. 7 Jun 1984. Yugoslavia: laboratory, Zemun, Belgrade.
- 1784 IL Sivcev (281). Alate, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 8 Oct 1984. Yugoslavia: PKB Commune, E. Belgrade.
- 1785 IL Sivcev (278). Alate, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 8 Oct 1984. Yugoslavia: PKB Commune, E. Belgrade.
- 1786 IL Sivcev (271). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 8 Oct 1984. Yugoslavia: PKB Commune, E. Belgrade.
- 1824 IL Sivcev (V-11). 4th instar larva, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 11 Oct 1984. Yugoslavia: Vaternik.
- 1825 IL Sivcev (F-19). 4th instar larva, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 11 Oct 1984. Yugoslavia: Futog.
- 1826 IL Sivcev (F-34). 3rd instar larva, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 11 Oct 1984. Yugoslavia: Futog.
- 1827 IL Sivcev (F-30). 3rd instar larva, *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 11 Oct 1984. Yugoslavia: Futog.
- 1981 TJ Poprawski (0184). Nymph, *Aphis fabae* [Homoptera: Aphididae]. Acc'd 25 Sep 1985. France: La Minière.
- 1985 TJ Poprawski (0188). Nymph, *Aphis fabae* [Homoptera: Aphididae]. Acc'd 25 Sep 1985. France: La Minière.
- 1986 TJ Poprawski (0189). Nymph, *Macrosiphum rosae* [Homoptera: Aphididae]. Acc'd 25 Sep 1985. France: La Minière.
- 1987 TJ Poprawski (0190). Nymph, *Macrosiphum rosae* [Homoptera: Aphididae]. Acc'd 25 Sep 1985. France: La Minière.
- 2016 IL Sivcev (21/85). [Homoptera: Aphididae] on *Cychorium intibus*. 3 Jul 1985. Yugoslavia: Zemun, Belgrade.
- 2017 IL Sivcev (74/85). *Acyrthosiphon pisum* [Homoptera: Aphididae] on pea. 5 Jul 1985. Yugoslavia: Micunovo, Voyvodina.
- 2018 IL Sivcev (76/85). *Acyrthosiphon pisum* [Homoptera: Aphididae] on pea. 5 Jul 1985. Yugoslavia: Micunovo, Voyvodina.
- 2019 IL Sivcev (63/85). *Aphis fabae* [Homoptera: Aphididae] on poppy. 5 Jul 1985. Yugoslavia: Micunovo, Voyvodina.
- 2020 IL Sivcev (65/85). *Aphis fabae* [Homoptera: Aphididae] on poppy. 5 Jul 1985. Yugoslavia: Micunovo, Voyvodina.
- 2085 TJ Poprawski (0191). Nymph, *Myzus persicae* [Homoptera: Aphididae] in alfalfa field. Acc'd 18 Feb 1986. Spain: Ciudad Real.
- 2086 TJ Poprawski (0193). Nymph, *Myzus persicae* [Homoptera: Aphididae] in alfalfa field. Acc'd 18 Feb 1986. Spain: Ciudad Real.
- 2108 IL Sivcev (174/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 14 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2109 IL Sivcev (184/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 14 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2110 IL Sivcev (185/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 14 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2112 IL Sivcev (229/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 21 Oct 1986. Yugoslavia: Zemun, Belgrade.
- 2114 IL Sivcev (271/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2115 IL Sivcev (280/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2116 IL Sivcev (282/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2117 IL Sivcev (284/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2118 IL Sivcev (291/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2119 IL Sivcev (294/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2120 IL Sivcev (297/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2121 IL Sivcev (301/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.
- 2122 IL Sivcev (304/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 30 Oct 1985. Yugoslavia: Zemun, Belgrade.

- 2123 IL Sivcev (198/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 17 Oct 1985. Yugoslavia: Bijeljina, Bosnia and Hercegovina.
- 2124 IL Sivcev (249/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 25 Oct 1985. Yugoslavia: Futog.
- 2128 IL Sivcev (261/85). *Brevicoryne brassicae* [Homoptera: Aphididae] on cabbage. 25 Oct 1985. Yugoslavia: Futog.
- 2280 IL Sivcev (46/86). *Brevicoryne brassicae* [Homoptera: Aphididae]. 23 Jun 1986. Yugoslavia: PKB commune, Zemun, Belgrade.
- 2293 IL Sivcev (53/86). *Brevicoryne brassicae* [Homoptera: Aphididae]. 23 Jun 1986. Yugoslavia: PKB commune, Zemun, Belgrade.
- 2298 IL Sivcev. [Homoptera: Aphididae]. Acc'd 18 Nov 1986. Yugoslavia: PKB commune, Zemun, Belgrade.
- 2583 K Hural (HG7202). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2584 K Hural (HG7203). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2585 K Hural (HG7204). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2587 K Hural (HG7207). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2588 K Hural (HG7208). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2589 K Hural (HG7209). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2591 K Hural (HG72011). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2592 K Hural (HG72012). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2593 K Hural (HG72013). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2594 K Hural (HG72014). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 20 Jul 1988. USA: Lansing, New York.
- 2754 K Hural (Au-7). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 24 May 1989. USA: Aurora, New York.
- 2755 K Hural (FR-14). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2756 K Hural (Ma-1). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 11 Jul 1989. USA: Malone, New York.
- 2757 K Hural (Au-15). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2758 K Hural (FR-7). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2760 K Hural (Au-8). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 24 May 1989. USA: Aurora, New York.
- 2761 K Hural (Au-6). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 24 May 1989. USA: Aurora, New York.
- 2762 K Hural (Au-1). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 24 May 1989. USA: Aurora, New York.
- 2763 K Hural (FR-12). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2766 K Hural (Au-10). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2767 K Hural (Au-14). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2768 K Hural (Au-11). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2769 K Hural (Au-21). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2773 K Hural (FR-4). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2781 K Hural (Au-20). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2782 K Hural (Fe-2). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 11 Jul 1989. USA: Malone, New York.
- 2783 K Hural (Ma-2). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 11 Jul 1989. USA: Malone, New York.
- 2784 K Hural (Au-17). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 7 Jun 1989. USA: Aurora, New York.
- 2837 K Hural (Au-28). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Aurora, New York.
- 2838 K Hural (Au-26). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Aurora, New York.
- 2839 K Hural (Au-27). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Aurora, New York.

- 2840 K Hural (FR-16). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2842 K Hural (FR-18). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2844 K Hural (FR-19). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2845 K Hural (FR-20). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2846 K Hural (FR-21). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2847 K Hural (Au-29). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Aurora, New York.
- 2848 K Hural (Au-24). *Acyrthosiphon pisum* [Homoptera: Aphididae]. 7 Jun 1989. USA: Aurora, New York.
- 2851 K Hural (FR-10). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2852 K Hural (FR-1). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2853 K Hural (FR-22). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2854 K Hural (Au-4). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 24 May 1989. USA: Aurora, New York.
- 2855 K Hural (Au-30). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Aurora, New York.
- 2856 K Hural (MP-2). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Jun 1989. USA: Ithaca, New York.
- 2865 K Hural (FR-23). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2866 K Hural (FR-24). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2867 K Hural (FR-25). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2868 K Hural (EW-5). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 30 May 1989. USA: Trumansburg, New York.
- 2870 K Hural (FR-8). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 26 May 1989. USA: Ithaca, New York.
- 2872 K Hural (FR-26). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
- 2873 K Hural (MP-5). *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 16 Jun 1989. USA: Ithaca, New York.
- 2874 MG Feng (MD8930). *Metopolophium dirhodum* [Homoptera: Aphididae]. Jul 1989. USA: Parma, Idaho.
- 2875 MG Feng (MD8931). *Metopolophium dirhodum* [Homoptera: Aphididae]. Jul 1989. USA: Parma, Idaho.
- 2876 MG Feng (MD8932). *Metopolophium dirhodum* [Homoptera: Aphididae]. Jul 1989. USA: Parma, Idaho.
- 3081 SP Wraight. *Diuraphis noxia* [Homoptera: Aphididae]. 18 Jul 1990. USA: irrigated barley field, Piedmont Organic Produce Farm, Wellington, Colorado.
- 3082 SP Wraight. *Diuraphis noxia* [Homoptera: Aphididae]. 28 Jun 1990. USA: non-irrigated barley field, George Varra farm, Fort Collins, Colorado.
- 3126 G Mercadier and TJ Poprawski (9014). *Diuraphis noxia* [Homoptera: Aphididae] on *Hordeum murinum*. 10 May 1990. France: Montpellier, Hérault.
- 3174 G Mercadier and TJ Poprawski (9015). *Diuraphis noxia* [Homoptera: Aphididae] on wheat. 11 May 1990. France: Montpellier, Hérault.
- 3175 G Mercadier and TJ Poprawski (9016). *Diuraphis noxia* [Homoptera: Aphididae] on *Agropyron repens*. 11 May 1990. France: Montpellier, Hérault.
- 3234 I Majchrowicz (28). *Acyrthosiphon pisum* [Homoptera: Aphididae] on pea. Jul 1991. USA: Morgan Farm, Mt. Vernon, Washington.
- 3237 I Majchrowicz (32). *Acyrthosiphon pisum* [Homoptera: Aphididae] on pea. Jul 1991. USA: Dave Boon, Mt. Vernon, Washington.
- 3238 I Majchrowicz (37). *Aphis fabae* [Homoptera: Aphididae] on pineapple weed. Jul 1991. USA: Morgan Farm, Mt. Vernon, Washington.
- 3240 I Majchrowicz (58). *Acyrthosiphon pisum* [Homoptera: Aphididae] on bean. 31 Jul 1991. USA: garden nr. University of Idaho, Moscow, Idaho.
- 3241 I Majchrowicz (83). *Aphis fabae* [Homoptera: Aphididae] on *Chenopodium album*. 10 Aug 1991. USA: nr. cages, Yakima, Washington.
- 3248 DC Steinkraus (1). *Myzus persicae* [Homoptera: Aphididae] on turnip greens. 28 Nov 1990. USA: Washington County, Arkansas.
- 3249 DC Steinkraus (2). *Myzus persicae* [Homoptera: Aphididae] on turnip greens. 28 Nov 1990. USA: Washington County, Arkansas.
- 3250 DC Steinkraus (5). *Myzus persicae* [Homoptera: Aphididae] on turnip greens. 28 Nov 1990. USA: Washington County, Arkansas.
- 3251 DC Steinkraus (6). *Myzus persicae* [Homoptera: Aphididae] on turnip greens. 28 Nov 1990. USA: Washington County, Arkansas.

- 3365 N Underwood ← SP Wraight. *Metopolophium dirhodum* [Homoptera: Aphididae] on late-sown spring wheat. 9 Jul 1991. USA: SW Idaho R/E Center, Parma, Idaho.
- 3366 N Underwood ← SP Wraight. *Schizaphis graminum* [Homoptera: Aphididae] on late-sown spring wheat. 5 Jul 1991. USA: SW Idaho R/E Center, Parma, Idaho.
- 3367 N Underwood ← SP Wraight. *Metopolophium dirhodum* [Homoptera: Aphididae] on late-sown spring wheat. 5 Jul 1991. USA: SW Idaho R/E Center, Parma, Idaho.
- 3410 I Majchrowicz (71). *Aphis* sp. [Homoptera: Aphididae] on *Tanacetum vulgare* L. 8 Aug 1991. USA: Bellingham, Washington.
- 3411 I Majchrowicz (8) ← GL Nordin. *Myzus nicotinae* [Homoptera: Aphididae]. Rec'd 20 Sep 1991. USA: Kentucky.
- 3412 I Majchrowicz ← GL Nordin. *Myzus nicotinae* [Homoptera: Aphididae]. Rec'd 20 Sep 1991. USA: Kentucky.
- 3459 I Majchrowicz (10) ← GL Nordin. *Myzus nicotinae* [Homoptera: Aphididae]. Rec'd 20 Sep 1991. USA: Kentucky.
- 4934 [IACR-Rothamsted NW 231] JK Pell (NW 231). *Acyrthosiphon pisum* [Homoptera: Aphididae]. 24 Mar 1995. Laboratory manipulation: Reisolation.
- 5371 C Nielsen (KVL 1996-1). *Brevicoryne brassicae* [Homoptera: Aphididae]. 22 Sep 1996. Denmark: Hegenstrup, Slangerup, Zealand.
- 5372 C Nielsen (KVL 1996-2). *Brevicoryne brassicae* [Homoptera: Aphididae]. 20 Sep 1996. Denmark: Hegenstrup, Slangerup, Zealand.
- 5373 C Nielsen (KVL 1996-3). *Brevicoryne brassicae* [Homoptera: Aphididae]. 20 Sep 1996. Denmark: Hegenstrup, Slangerup, Zealand.
- 5374 C Nielsen (KVL 1996-4). *Brevicoryne brassicae* [Homoptera: Aphididae]. 11 Oct 1996. Denmark: Hegenstrup, Slangerup, Zealand.
- 5403 C Nielsen. *Sitobion avenae* [Homoptera: Aphididae] on *Hordeum murinum* L. Aug 1995. Denmark: Copenhagen, Valbyparken, Zealand.
- 5707 JL Hatting (5). *Metopolophium dirhodum* [Homoptera: Aphididae] on *Triticum aestivum* L. 4 Sep 1997. South Africa: Riviersonderend, Western Cape Province.
- 5708 JL Hatting (6). *Metopolophium dirhodum* [Homoptera: Aphididae] on *Triticum aestivum*. 4 Sep 1998. South Africa: Riviersonderend, Western Cape Province.
- 5995 C Nielsen (KVL 98-21). Alate, *Aphis fabae* [Homoptera: Aphididae] on *Euonymus europaea*. 9 Oct 1998. Denmark: Copenhagen, Zealand.
- 6166 K Dromph (KVL 633). *Sitobion avenae* [Homoptera: Aphididae] on *Hordeum murinum*. 13 Aug 1995. Denmark: Valbyparken, Copenhagen, Zealand.
- 6631 PS Duetting (G1). *Acyrthosiphon pisum* [Homoptera: Aphididae] on *Pisum sativum* cv. Columbia, garden peas. 25 Jun 2000. USA: University of Idaho Kambitsch Research Farm, Latah County, Idaho.
- 6902 MR McGuire. [Homoptera: Aphididae] from roadside patch of *Malva* sp., mallow. 7 Feb 2001. USA: Intersection of Road 14 and Avenue 22, Madera County, California. Live aphids collected were a mixture of *Myzus persicae* Sulzer and *Aphis gossypii* Glover.
- 7212 AE Hajek (03 NY 7-3-4). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 4, North Rose, New York.
- 7213 AE Hajek (03 NY 7-4-1). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 4, North Rose, New York.
- 7214 AE Hajek (03 NY 7-4-2). *Aphis glycines* [Homoptera: Aphididae]. 26 Aug 2003. USA: Field number 4, North Rose, New York.
- 7226 AE Hajek (03 NY 7-4-3). *Aphis glycines* [Homoptera: Aphididae]. 27 Aug 2003. USA: Field number 4, North Rose, New York.
- 7937 *Acyrthosiphon pisum* [Homoptera: Aphididae]. 16 Jul 1998. Switzerland: Zurich.
- 7938 *Microlophium carnosum* [Homoptera: Aphididae]. 2 Jul 1996. Switzerland: Schaffhausen.
- 7939 16 Jul 1998. Switzerland: Zurich.
- 8607 AE Hajek (03 NY 7-3-4). *Aphis glycines* [Homoptera: Aphididae]. 7 Aug 2003. USA: Field number 4, North Rose, New York.
- Pandora nouri*** (Remaudière & Hennebert) Humber
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae
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- 199 [CSIRO EM652] RT Mietkiewski. [Homoptera: Aphididae] on potato. 1 Sep 1977. USA: Rogers Farm, Stillwater, Maine.
- 362 CSIRO (EM538) ← R Teakle. *Acyrthosiphon kondoi* [Homoptera: Aphididae]. Rec'd 1979. Australia: Gatton, Queensland.
- 366 [IPLB 1066] CSIRO (EM542) ← JP Latgé. *Therioaphis maculata* [Homoptera: Aphididae]. Rec'd 22 Jan 1979. USA.
- 8930 MG Feng (ZJU0603) and ZH Huang. Air-trapped alate, *Lipaphis erysimi* [Homoptera: Aphididae]. 23 Mar 2006. PR China: Menghai County, Yunnan Province.
- 8931 MG Feng (ZJU0604) and ZH Huang. Air-trapped alate, *Lipaphis erysimi* [Homoptera: Aphididae]. Jun 2006. PR China: Menghai County, Yunnan Province.

Schizangiella sp.

[Entomophthoromycotina: Entomophthorales]
Basidiobolaceae

- 2237 R Blaschke-Hellmessen (1). *Elaphe* sp. [Squamata: Colubridae] from granuloma in gut. Rec'd 30 Sep 1986. Germany: Dresden.
2239 R Blaschke-Hellmessen (14). *Elaphe* sp. [Squamata: Colubridae] from granuloma in gut. Acc'd 30 Sep 1986. Germany: Dresden.

Schizangiella serpentis Humber (sp. nov.,unpubl.)
[Entomophthoromycotina: Entomophthorales]
Basidiobolaceae

- 203 AA Padhye (CDC 76-075022). Female adult, *Crotalus horridus* [Squamata: Viperidae]. May 1974. USA: Baltimore Zoological Park, Baltimore, Maryland.
8000 B Burwell ← R Legge. *Elaphe obsoleta* [Squamata: Colubridae]. 23 Feb 2006. USA: Powhatan School, Boyce, Virginia.
8047 B Burwell ← R Legge. *Elaphe obsoleta* [Squamata: Colubridae]. 14 Jun 2006. USA: Powhatan School, Boyce, Virginia. Isolated during necropsy of snake from which ARSEF 8000 was previously obtained.

Strongwellsea castrans Batko & Wiser

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Strains are provided as vegetative protoplasts in liquid tissue culture medium. No sustainable growth of walled hyphae, conidia, or resting spores has been produced by cultures.

- 3282 J Eilenberg (KVL 62). *Delia radicum* [Diptera: Anthomyiidae]. 8 Sep 1988. Denmark: Roskilde, Zealand.
3485 J Eilenberg (KVL 84). *Delia radicum* [Diptera: Anthomyiidae]. Aug 1991. Denmark: Slangerup, Frederiksberg.

Zoophthora sp.

[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 3486 J Eilenberg (KVL 79). *Forficula auricularia* [Dermoptera: Forficulidae]. Sep 1991. Denmark: Ølstykke, Frederiksberg.
3487 J Eilenberg (KVL 80). *Forficula auricularia* [Dermoptera: Forficulidae]. Sep 1991. Denmark: Ølstykke, Frederiksberg.
3488 J Eilenberg (KVL 81). *Forficula auricularia* [Dermoptera: Forficulidae]. Sep 1991. Denmark: Ølstykke, Frederiksberg.
7454 [CEP 127] C López Lastra. [Homoptera: Aphididae] on *Brassica oleracea* L., cabbage crop. 20 Apr 2004. Argentina: Parque Pereyra, Berazategui, Buenos Aires. **RESTRICTED ACCESS: consult Curator.**

Zoophthora anglica (Petch) Ben-Ze'ev & RG Kenneth
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 396 [ARSEF ?1377] S Keller (48). *Agriotes sputator* [Coleoptera: Elateridae]. 4 May 1977. Switzerland.
916 S Keller (411). *Notostira elongata* [Hemiptera: Miridae]. 25 Aug 1982. Switzerland.
926 S Keller (412). *Notostira elongata* [Hemiptera: Miridae]. 25 Aug 1982. Switzerland.
1739 N Wilding (85). *Trechus quadristriatus* [Coleoptera: Carabidae]. 5 Sep 1978. United Kingdom: Rothamsted Experimental Station, Hertfordshire, England.
2505 J Eilenberg (KVL 12). *Agriotes sputator* [Coleoptera: Elateridae]. 2 Jun 1986. Denmark: Brogaard, Fårevejle, Vestsjælland.

Zoophthora aphidis (Hoffman in Fresenius) Humber & Ben-Ze'ev
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 425 [ARSEF 467 (lost), 643 (lost); CSIRO EM740] S Keller (84). *Anoecia corni* [Homoptera: Aphididae]. Rec'd 6 Feb 1980. Switzerland.

Zoophthora lanceolata (S Keller) Humber & Ben-Ze'ev
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 426 [ARSEF ?468] S Keller (95). [Diptera: Nematocera]. Rec'd 6 Feb 1980. Switzerland: Rickenbach.
468 [ARSEF ?426] S Keller (95) ← G Remaudière. [Diptera: Brachycera]. Oct 1977. France.
469 S Keller (115). [Diptera: Nematocera]. Rec'd 27 May 1980. Switzerland: Rickenbach.

Zoophthora occidentalis (Thaxter) Humber & Ben-Ze'ev
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

- 207 [CSIRO EM680] RT Mietkiewski. *Macrosiphum euphorbiae* [Homoptera: Aphididae] on potato. 20 Sep 1977. USA: Rogers Farm, Stillwater, Maine.
2841 K Hural (FR-17). *Acyrtosiphon pisum* [Homoptera: Aphididae] on alfalfa. 5 Sep 1989. USA: Ithaca, New York.
3027 H Firstencel. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 26 Jun 1990. USA: Freese Rd., Ithaca, New York.
3028 H Firstencel. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 11 Jul 1990. USA: Stevenson Rd., Ithaca, New York.
3029 H Firstencel. *Acyrtosiphon pisum* [Homoptera: Aphididae]. 25 Jun 1990. USA: P-field, Aurora, New York.

3071 K Hural. *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 18 Sep 1990. USA: Hoffman field # 6G, Catherine, New York.

3073 K Hural. *Acyrthosiphon pisum* [Homoptera: Aphididae] on alfalfa. 18 Sep 1990. USA: Hoffman field # 7E, Catherine, New York.

Zoophthora phalloides (Batko) Humber, Ben-Ze'ev & RG Kenneth in Humber & Ben-Ze'ev
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

352 [ARSEF 1869 (lost)] CSIRO (EM548) or (EM681) ← N Wilding (27). *Myzus rannaculinum* [Homoptera: Aphididae]. 12 May 1978. France: Rennes, Ille-et-Vilaine.

2281 IL Sivcev (52/86). *Brevicoryne brassicae* [Homoptera: Aphididae]. 23 Jun 1986. Yugoslavia: PKB commune, Zemun, Belgrade.

Zoophthora phytonomi (Arthur) Humber, Ben-Ze'ev & RG Kenneth in Humber & Ben-Ze'ev
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae

113 [ARSEF 82 (lost); ATCC 34292; FPMI 951] RG Kenneth (3085) ← A Uziel. Larva, *Hypera variabilis* [Coleoptera: Curculionidae] on alfalfa. Apr 1976. Israel: Sedé Eliyahu.

191 RG Kenneth (3095) or (E.p. 2) ← I Ben-Ze'ev. Larva, *Hypera variabilis* [Coleoptera: Curculionidae]. Apr 1976. Israel: Sedé Eliyahu.

192 RG Kenneth (3133) ← I Ben-Ze'ev. Larva, *Hypera variabilis* [Coleoptera: Curculionidae] on alfalfa. 2 Mar 1977. Israel: Sedé Eliyahu.

202 [RG Kenneth 3178] AA Muka ← JP Kramer. *Hypera punctata* [Coleoptera: Curculionidae]. Jul 1977. USA: Ithaca, New York.

2188 RJ Dysart. Larva, *Hypera punctata* [Coleoptera: Curculionidae]. 29 Apr 1986. USA: Farmington, Delaware.

3342 S Roberts. *Hypera postica* [Coleoptera: Curculionidae]. Spring 1991. USA: Eddyville, Illinois.

3343 S Roberts. *Hypera postica* [Coleoptera: Curculionidae]. Spring 1991. USA: LaSalle County, Illinois.

3344 S Roberts. *Hypera postica* [Coleoptera: Curculionidae]. Spring 1991. USA: Albion, Illinois.

Zoophthora radicans (Brefeld) Batko
[Entomophthoromycotina: Entomophthorales]
Entomophthoraceae. Major synonyms: *Entomophthora sphaerosperma* Fresenius, *Entomophthora radicans* Brefeld, *Erynia radicans* (Brefeld) Humber, Ben-Ze'ev & Kenneth in Humber & Ben-Ze'ev.

13 [FPMI 696] RS Soper ← CC Thompson. *Neodiprion tsugae* [Hymenoptera: Diprionidae]. Aug 1971. USA: Prince of Wales Island, Alaska.

21 RS Soper ← DE Leonard (BBIV-20). Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 1973. USA: Maine.

44 [FPMI 697; RG Kenneth 3045] JD Vandenberg. Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 16 Jun 1975. USA: Oxbow-Masardis, Maine.

45 JD Vandenberg. Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 16 Jun 1975. USA: Oxbow-Masardis, Maine.

50 [FPMI 698] JD Vandenberg. Larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 16 Jun 1975. USA: 0.1 mi N of Oxbow Rd. on Rt. 11, Oxbow-Masardis, Maine.

52 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 19 Jun 1975. USA: 1.5 mi E of bridge at S. Bancroft, Bancroft Township, Maine.

68 [FPMI 688; IPLB 624] G Remaudière. *Tortrix viridana* [Lepidoptera: Tortricidae]. 22 May 1975. France: Forêt de Dourdan, Essonne.

72 [CSIRO EM532; FPMI 487] RG Kenneth (3046) ← ATCC (24493) ← DM MacLeod. *Lambdina fiscellaria fiscellaria* [Lepidoptera: Geometridae]. 7 Aug 1982. Canada: Ming's Bight, Newfoundland.

75 [FPMI 700] RG Kenneth (3060) or (E.s. 28). *Brachycaudus amygdalinus* [Homoptera: Aphididae] on *Polygonum equisetiforme* [Polygonaceae]. 23 Jan 1976. Israel: Rehovot, Central District.

88 [CSIRO EM569] JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 24 Jun 1976. USA: nr. Selden Road, Haynesville Woods, Maine.

103 [CSIRO EM518, EM578, EM724; FPMI 701] RG Kenneth (3100) or (E.s. 31) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 11 Jul 1976. Israel: Sedé Eliyahu.

104 [CSIRO EM553, EM725] RG Kenneth (3101) or (E.s. 32) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 11 Jul 1976. Israel: Sedé Eliyahu.

105 [CSIRO EM726] RG Kenneth (3102) or (E.s. 33) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

106 [CSIRO EM727] RG Kenneth (3103) or (E.s. 34) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

107 [CSIRO EM554] RG Kenneth (3104) or (E.s. 35) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

108 [CSIRO EM728] RG Kenneth (3105) or (E.s. 36) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

109 [CSIRO EM729] RG Kenneth (3106) or (E.s. 37) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

110 [CSIRO EM555] RG Kenneth (3107) or (E.s. 38) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.

- 111 [CSIRO EM556, EM730] RG Kenneth (3109) or (E.s. 40) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.
- 112 [CSIRO EM561] RG Kenneth (3110) or (E.s. 41) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 25 Jul 1976. Israel: Bet Dagan, Hamerkaz.
- 114 [CSIRO EM517] RG Kenneth (3096) or (E.s. 29) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. 11 Jul 1976. Israel: Sedé Eliyahu.
- 126 [FPMI 702; IPLB 27] JP Latgé and G Remaudière (625). *Psyllida etrioza* [Homoptera: Psyllidae] on *Prunus pensylvanicus* [Rosaceae]. 25 Aug 1976. Canada: Chute aux Galets, Québec.
- 139 [CSIRO EM731] RG Kenneth (3097) or (E.s. 30) ← A Uziel. *Theroaphis maculata* [Homoptera: Aphididae]. Acc'd 20 Nov 1978. Israel: Sedé Eliyahu.
- 141 [FPMI 687] JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 21 Jun 1977. USA: Map reference: T4R10, Maine.
- 142 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 20 Jun 1977. USA: Perham, Maine.
- 143 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 21 Jun 1977. USA: Perham, Maine.
- 144 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 21 Jun 1977. USA: Perham, Maine.
- 145 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 23 Jun 1977. USA: Carroll, Maine.
- 146 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 21 Jun 1977. USA: Map reference: T6R7, Shin Pond, Maine.
- 161 JD Vandenberg. Single spore reisolate of ARSEF 88. Jul 1977. Laboratory manipulation.
- 162 JD Vandenberg. Single spore reisolate of ARSEF 88. Jul 1977. Laboratory manipulation.
- 163 JD Vandenberg. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 1 Jul 1977. USA: forest-upper, Perham, Maine.
- 183 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 184 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 185 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 186 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 187 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 188 JD Vandenberg. Single spore reisolate of ARSEF 88. Sep 1977. Laboratory manipulation.
- 189 [ATCC 32797; FPMI 703] RG Kenneth (2884) or (3044) ← CBS (216.66) ← M Gustafsson. Phylum Arthropoda, Class Insecta. Rec'd 1977. Sweden.
- 221 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Presque Isle, Maine.
- 223 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 24 Jun 1978. USA: Springfield, Maine.
- 224 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 24 Jun 1978. USA: Springfield, Maine.
- 225 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 24 Jun 1978. USA: Macwahoq, Maine.
- 226 S Ignatowicz. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 24 Jun 1978. USA: Macwahoq, Maine.
- 227 S Ignatowicz. Pupa, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 3 Jul 1978. USA: Mamarda, Maine.
- 228 S Ignatowicz. Pupa, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 3 Jul 1978. USA: Mamarda, Maine.
- 229 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Princeton, Maine.
- 230 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Princeton, Maine.
- 231 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Princeton, Maine.
- 232 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Princeton, Maine.
- 233 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 28 Jun 1978. USA: Princeton, Maine.
- 234 S Ignatowicz. *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 30 Jun 1978. USA: Oak Hill, Maine.
- 235 S Ignatowicz. 6th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 30 Jun 1978. USA: Oak Hill, Maine.
- 237 [FPMI 704] P Dodge. *Theroaphis maculata* [Homoptera: Aphididae]. Aug 1978. USA: Ithaca, New York.
- 238 [CSIRO EM560] P Dodge. *Theroaphis maculata* [Homoptera: Aphididae]. Aug 1978. USA: Ithaca, New York.
- 239 P Dodge. *Theroaphis maculata* [Homoptera: Aphididae]. Aug 1978. USA: Ithaca, New York.

- 359 [ARSEF 370, 823; CSIRO EM539; IPLB 844] RJ Milner ← ARSEF (103). *Theroaphis maculata* [Homoptera: Aphididae]. Acc'd 8 Jun 1979. Australia: Armidale, New South Wales. Reisolated from field release at Armidale; forms protoplasts.
- 370 [ARSEF 359, 823; CSIRO EM539; IPLB 844] RJ Milner ← ARSEF (103). *Theroaphis maculata* [Homoptera: Aphididae]. Acc'd 27 Jul 1979. Australia: Armidale, New South Wales. Reisolated from field release at Armidale.
- 379 [IPLB 1118] CSIRO (EM540) ← JP Latgé. *Theroaphis maculata* [Homoptera: Aphididae]. 9 Nov 1978. Mexico.
- 388 S Keller (214). [Diptera]. Rec'd 3 Oct 1979. Switzerland: Zürich.
- 389 S Keller (217). *Dicyphus pallidus* [Hemiptera: Miridae]. Rec'd 3 Oct 1979. Switzerland: Zürich.
- 404 [FPMI 705] S Keller (59). Adult, [Lepidoptera]. 20 Jul 1977. Switzerland.
- 407 [FPMI 706] FPMI (655) ← P Degroot. 4th instar larva, *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 26 Jun 1979. Canada: Thessalon, Ontario.
- 491 H Beerman and DE McCabe. Reisolate of ARSEF 141 after 3 passes through *Choristoneura fumiferana* [Lepidoptera: Tortricidae]. 18 Jun 1980. Laboratory manipulation.
- 685 DW Roberts (102181-12). *Nilaparvata lugens* [Homoptera: Delphacidae]. 21 Oct 1981. PR China: Wuhan, Hupei.
- 789 [CNPAF 82-6-25-01; CP 64; CSIRO EM732] RA Daoust (EK8-1) and M Yokoyama. Adult, *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 25 Jun 1982. Brazil: CNPAF, Goiânia, Goiás.
- 790 [CNPAF 82-6-25-02; CP 65; CSIRO EM733] RA Daoust (EK8-2) and M Yokoyama. Adult, *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 25 Jun 1982. Brazil: CNPAF, Goiânia, Goiás.
- 800 EL Cuebas-Incle. [Homoptera: Cercopidae]. Jul 1979. USA: Six Mile Creek, Ithaca, New York.
- 822 [CSIRO EM667; IPLB 421] CSIRO (EM667) ← G Remaudière. *Capitophorus* sp. [Homoptera: Aphididae]. 24 Oct 1973. France: Quineville, Manche.
- 823 [ARSEF 359, 370; CSIRO EM539; IPLB 844] G Lutton and RJ Milner ← ARSEF (103). *Theroaphis maculata* [Homoptera: Aphididae]. 9 Nov 1978. Australia: Armidale, New South Wales. Reisolated from field release at Armidale.
- 899 SP Wright (Ef-1). Reisolate of ARSEF 789 passed through *Empoasca fabae* [Homoptera: Cicadellidae]. Feb 1983. Laboratory manipulation.
- 914 S Keller (445). *Drepanosiphum aceris* [Homoptera: Aphididae]. Nov 1982. Switzerland.
- 1018 JV Maddox and MR McGuire (A). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1019 JV Maddox and MR McGuire (B). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1020 JV Maddox and MR McGuire (D). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1021 JV Maddox and MR McGuire (F). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1048 J Aoki (Ent. 8) ← H Kawamoto. *Plutella xylostella* [Lepidoptera: Plutellidae]. Dec 1975. Japan: Fuchu, Tokyo Prefecture.
- 1050 J Aoki (Ent. 26) ← M Shimazu. *Delphacodes striatella* [Homoptera: Delphacidae]. Dec 1976. Japan: Chikugo, Fukuoka Prefecture.
- 1082 CSIRO (EM752) ← G Lutton. *Merophysas divulsana* [Lepidoptera: Tortricidae]. 28 Jul 1983. Australia: Boonah, Queensland.
- 1100 AR Rashid. Larva, *Plutella xylostella* [Lepidoptera: Plutellidae]. Apr 1981. Malaysia: Cameron Highlands.
- 1125 [CSIRO EM682] M Shimazu (F-17). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 29 Mar 1984. Japan: Fukuoka Prefecture.
- 1130 [CSIRO EM742] S Keller (444). *Drepanosiphum aceris* [Homoptera: Aphididae]. Nov 1982. Switzerland.
- 1136 M Shimazu (F-43). *Nilaparvata lugens* [Homoptera: Delphacidae]. Acc'd 3 Apr 1984. Japan: Fukuoka Prefecture.
- 1227 [CNPAF 84-04-03-6B; CP 127] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 3 Apr 1984. Brazil: Augusto Pestana (Ijuí), Rio Grande do Sul.
- 1228 [CNPAF 84-04-02-5D; CP 128] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1229 [CNPAF 84-04-02-6F; CP 129] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1231 [CNPAF 84-04-02-5B; CP 131] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1232 [CNPAF 84-04-02-5C; CP 132] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1233 [CNPAF 84-04-02-6G; CP 133] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1234 [CNPAF 84-04-02-6B; CP 134] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.

- 1236 [CNPAF 84-04-02-5J; CP 136] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1237 [CNPAF 84-04-02-5A; CP 137] DW Roberts. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 2 Apr 1984. Brazil: Palmitos, Santa Catarina.
- 1239 [CNPAF 84-03-30-2A-A; CP 139] DW Roberts. [Homoptera: Cicadellidae]. 30 Mar 1984. Brazil: Francisco Beltrão, Paraná.
- 1261 JV Maddox and MR McGuire (C). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1262 JV Maddox and MR McGuire (E). *Empoasca fabae* [Homoptera: Cicadellidae] on potato. 12 Sep 1983. USA: Arlington Research Station, nr. Madison, Wisconsin.
- 1263 J Aoki (Ent. 5) ← M Shimazu. [Homoptera: Cicadellidae]. Acc'd 3 May 1984. Japan: Chikugo, Fukuoka Prefecture.
- 1336 [ARSEF 1428] S Balazy (1555). Adult, [Diptera: Nematocera] attached to the leaves of herbaceous plants on a leafy forest floor. 21 May 1983. Poland: Bialowieza National Park.
- 1337 S Balazy (1558b). [Diptera] attached to the underside of leaves of arboraceous plants. 22 May 1983. Poland: Bialowieza National Park.
- 1341 S Balazy (1577/6). *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: Sadurki.
- 1342 S Balazy (1577/7). *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: Sadurki.
- 1343 S Balazy (1577/8). *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: Sadurki.
- 1344 S Balazy (1578/1). *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: gardens, Turka.
- 1345 S Balazy (1578/2). Larva, *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: Turka.
- 1346 S Balazy (1578/1-2). *Pieris brassicae* [Lepidoptera: Pieridae]. 10 Sep 1983. Poland: Turka.
- 1350 S Balazy (1589). Acc'd 5 Jun 1984. Poland.
- 1428 [ARSEF 1336] S Balazy (1555). [Diptera: Nematocera] attached to the leaves of herbaceous plants on a leafy forest floor. 21 May 1983. Poland: Bialowieza National Park.
- 1492 SG Wraight and SP Wraight (A-22). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1493 SG Wraight and SP Wraight (A-24). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 9 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1494 SG Wraight and SP Wraight (A-26). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 9 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1495 SG Wraight and SP Wraight (A-31). [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1496 SG Wraight and SP Wraight (A-33). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1497 SG Wraight and SP Wraight (A-37). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1498 SG Wraight and SP Wraight (A-41). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1499 SG Wraight and SP Wraight (A-42). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1500 SG Wraight and SP Wraight (A-44). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1501 SG Wraight and SP Wraight (A-50). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1502 SG Wraight and SP Wraight (B-37). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1503 SG Wraight and SP Wraight (B-33). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1504 SG Wraight and SP Wraight (B-40). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: bean field, CNPAF, Goiânia, Goiás.
- 1541 SG Wraight and SP Wraight (B-48). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1542 SG Wraight and SP Wraight (B-51). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1543 SG Wraight and SP Wraight (ErI11T3). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1544 [ARSEF 1595] SG Wraight and SP Wraight (A-9). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1581 SG Wraight and SP Wraight (A-6). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1582 SG Wraight and SP Wraight (A-5). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1583 SG Wraight and SP Wraight (A-7). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1584 SG Wraight and SP Wraight (A-10). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.

- 1585 SG Wraight and SP Wraight (A-12). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1586 SG Wraight and SP Wraight (A-13). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 4 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1587 SG Wraight and SP Wraight (A-16). [Homoptera: Cicadellidae]. 5 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1588 SG Wraight and SP Wraight (A-17). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1589 SG Wraight and SP Wraight (A-19). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1590 SG Wraight and SP Wraight (A-21). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1591 SG Wraight and SP Wraight (A-30). [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1593 SG Wraight and SP Wraight (A-40). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1594 SG Wraight and SP Wraight (A-43). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
- 1595 [ARSEF 1544] SG Wraight and SP Wraight (A-9). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 Jul 1984. Brazil: CNPAF, Goiânia, Goiás.
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- 1675 M Shimazu (F-448(2)). *Ptycholoma aeriferana* [Lepidoptera: Tortricidae]. 29 Jun 1984. Japan: Hokkaido Prefecture.
- 1699 MC Rombach (A). *Cnaphalocrois medinalis* [Lepidoptera: Pyralidae]. Acc'd 6 Nov 1984. Philippines: IRRI, Los Baños, Manila.
- 1719 S Keller (520). *Trioza urticae* [Homoptera: Psyllidae]. 18 Oct 1984. Switzerland: Trasadingen, Schaffhausen.
- 1841 SG Wraight and SP Wraight (Ef239t2). Reisolate of ARSEF 239 passed through *Empoasca fabae* [Homoptera: Cicadellidae]. 24 Jan 1985. Laboratory manipulation.
- 1928 SG Wraight and SP Wraight (A1a). *Empoasca kraemerii* [Homoptera: Cicadellidae] on cowpea. 25 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1929 SG Wraight and SP Wraight (B1). *Empoasca kraemerii* [Homoptera: Cicadellidae] on cowpea. 25 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1930 SG Wraight and SP Wraight (L2). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 29 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1931 SG Wraight and SP Wraight (M2). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 29 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1932 SG Wraight and SP Wraight (K2). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 29 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1933 SG Wraight and SP Wraight (N1). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 29 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1934 SG Wraight and SP Wraight (F). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 25 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1935 SG Wraight and SP Wraight (J1). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 25 May 1985. Brazil: CNPAF, Goiânia, Goiás.
- 1937 SG Wraight and SP Wraight (W3). *Empoasca kraemerii* [Homoptera: Cicadellidae] on beans. 8 Jun 1985. Brazil: CNPAF, Goiânia, Goiás.
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- 2196 DW Roberts. [Homoptera: Cicadellidae]. 2 Jun 1986. Brazil: CNPAF, Goiânia, Goiás.
- 2241 RI Carruthers (HOP-V). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2242 RI Carruthers (HOP-III). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2243 RI Carruthers (HOP-II). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2244 RI Carruthers (HOP-VII). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2245 RI Carruthers (HOP-VI). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2246 RI Carruthers (HOP-I). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2256 TJ Poprawski (8631). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.
- 2257 TJ Poprawski (8633). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.
- 2258 TJ Poprawski (8634). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.
- 2259 TJ Poprawski (8635). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.
- 2260 TJ Poprawski (8636). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.

- 2261 TJ Poprawski (8637). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 29 Aug 1986. France: Roche sur Chalais, Charente.
- 2262 TJ Poprawski (8639). Adult, *Hauptida distinguenda* [Homoptera: Cicadellidae] on sunflower. 30 Aug 1986. France: Angoulême, Charente.
- 2282 RI Carruthers (D-I). *Empoasca* sp. [Homoptera: Cicadellidae] on sugar beet. 4 Sep 1986. Yugoslavia: Dobakov.
- 2283 RI Carruthers (D-III). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Dobakov.
- 2284 RI Carruthers (D-II). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Dobakov.
- 2285 RI Carruthers. *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Padihska Skela.
- 2286 RI Carruthers (A-IV). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2287 RI Carruthers (A-II). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Zemun, Belgrade.
- 2288 RI Carruthers (D-IV). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Dobakov.
- 2289 RI Carruthers (C-II). *Empoasca* sp. [Homoptera: Cicadellidae]. 4 Sep 1986. Yugoslavia: Padihska Skela.
- 2400 H Firstencel. *Empoasca fabae* [Homoptera: Cicadellidae]. Mar 1986. Location not specified. Segregant of ARSEF 1590, forms resting spores.
- 2410 DG Holdom (300187). Larva, *Cnaphalocrocis medinalis* [Lepidoptera: Pyralidae]. 30 Jan 1987. Indonesia: CIBA-GEIGY R & D Station, Cikampek, Jawa Barat, Java.
- 2411 DG Holdom (130287-2). Adult, *Sesamia inferens* [Lepidoptera: Noctuidae]. 13 Feb 1987. Indonesia: CIBA-GEIGY R & D Station, Cikampek, Jawa Barat, Java.
- 2499 [ARSEF 2524 (deaccessioned)] J Eilenberg (KVL 32). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2500 J Eilenberg (KVL 30). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2501 J Eilenberg (KVL 31). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2503 J Eilenberg (KVL 37). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2506 J Eilenberg (KVL 35). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2523 J Eilenberg (KVL 36). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2549 JV Maddox (HELMAV87, BULT). [Homoptera: Cicadellidae]. 1987. USA: N of Champaign, Illinois.
- 2550 JV Maddox (EL87, PLH). *Empoasca fabae* [Homoptera: Cicadellidae]. 1987. USA: N of Champaign, Illinois.
- 2551 JV Maddox (CHAMP87, BPLH-2). [Homoptera: Cicadellidae]. 1987. USA: N of Champaign, Illinois.
- 2552 JV Maddox (UNION87, BLH-1). [Homoptera: Cicadellidae]. 1987. USA: Union soybean field, McHenry, Illinois.
- 2554 [ARSEF 2669 (deaccessioned)] J Eilenberg (KVL 38). [Diptera]. 24 Aug 1987. Denmark: Strandholm, Fårevejle, Vestsjælland.
- 2558 H Firstencel. Laboratory reisolate of ARSEF 1590 from marcescent material stored 35 months. Rec'd 8 Mar 1988. Location not specified.
- 2600 BP Magalhães ← SP Wraight (T-7). Reisolate of ARSEF 1261. Acc'd 13 Sep 1988. Location not specified.
- 2601 BP Magalhães ← SP Wraight (T-8). Reisolate of ARSEF 1261. Acc'd 13 Sep 1988. Location not specified.
- 2666 J Eilenberg (KVL 47). *Delia radicum* [Diptera: Anthomyiidae]. 28 Jul 1988. Denmark: Roskilde, Zealand.
- 2696 [ARSEF ?3161] TJ Poprawski (8812D). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2697 TJ Poprawski (88102). Reisolate of ARSEF 2700 after 3 passes through *Schizaphis graminum* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2698 TJ Poprawski (88111). Reisolate of ARSEF 2709 after 3 passes through *Chorisops tibialis* [Diptera: Stratiomyidae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2699 TJ Poprawski (88113). Reisolate of ARSEF 2706 after 2 passes through *Empoasca flavescens* [Homoptera: Cicadellidae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2700 [ARSEF 3171] G Mercadier and TJ Poprawski (8843A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2701 [ARSEF 3119] G Mercadier and TJ Poprawski (8826). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2702 [ARSEF ?3117] TJ Poprawski (8824B). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2703 [ARSEF 3116] G Mercadier and TJ Poprawski (8820A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Kovin.
- 2704 TJ Poprawski (88100). Reisolate of ARSEF 2702 after 2 passes through *Diuraphis noxia* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.

- 2705 TJ Poprawski (88103). Reisolate of ARSEF 2701 after 7 passes through *Diuraphis noxia* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2706 [ARSEF 3149] G Mercadier and TJ Poprawski (8825A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2707 TJ Poprawski (88107). Reisolate of ARSEF 2696 after 2 passes through *Acyrthosiphon pisum* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2708 [ARSEF ?3163] TJ Poprawski (8817B). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2709 [ARSEF 3114] G Mercadier and TJ Poprawski (8818A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 20 Sep 1988. Yugoslavia: Kovin.
- 2710 TJ Poprawski (88121). Reisolate of ARSEF 2703 after 2 passes through *Schizaphis graminum* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2711 TJ Poprawski (88108). Reisolate of ARSEF 2696 after 2 passes through *Diuraphis noxia* [Homoptera: Aphididae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2712 TJ Poprawski (88116). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 20 Sep 1988. Yugoslavia: Kovin.
- 2713 [ARSEF 3164] G Mercadier and TJ Poprawski (8823A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 2714 TJ Poprawski (88129). Reisolate of ARSEF 2703 passed through *Syrphus* sp. [Diptera: Syrphidae]. Rec'd 14 Apr 1989. Laboratory manipulation.
- 2716 H Firstencel ← JV Maddox. *Empoasca fabae* [Homoptera: Cicadellidae] on snap bean. 1987. USA: Illinois Natural History Survey plot, Champaign, Illinois.
- 2717 H Firstencel ← JV Maddox. *Empoasca fabae* [Homoptera: Cicadellidae] on soybean. 1987. USA: Union field, McHenry, Illinois.
- 2718 H Firstencel ← JV Maddox. *Empoasca fabae* [Homoptera: Cicadellidae] on bean. 1987. USA: Helmar field, Kendall, Illinois.
- 2719 H Firstencel ← JV Maddox. *Empoasca fabae* [Homoptera: Cicadellidae] on soybean. 1987. USA: East Lynn field, Vermillion, Illinois.
- 2720 H Firstencel ← JV Maddox. *Empoasca fabae* [Homoptera: Cicadellidae]. 1985. USA: Champaign, Illinois.
- 2732 GW Riethmacher (EB2). *Plutella xylostella* [Lepidoptera: Plutellidae]. 6 Apr 1989. Philippines: La Trinidad, Benguet.
- 2811 MG Feng (MD8901). *Metopolophium dirhodum* [Homoptera: Aphididae] on spring wheat. 7 Jul 1989. USA: Parma, Idaho.
- 2893 GW Riethmacher (E2). *Plutella xylostella* [Lepidoptera: Plutellidae]. 3 Apr 1989. Philippines: La Trinidad, Benguet.
- 2977 D Landis (1A). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 23 Aug 1989. USA: Michigan State University Botany Farm, Ingham County, Michigan.
- 2978 D Landis (1B). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 23 Apr 1989. USA: Michigan State University Botany Farm, Ingham County, Michigan.
- 2979 D Landis (1C). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 23 Aug 1989. USA: Michigan State University Botany Farm, Ingham County, Michigan.
- 2980 D Landis (2A). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 24 Aug 1989. USA: Hudson Farm, Allegan County, Michigan.
- 2994 LG Leite and SP Wraight (C-1 Topo SP-3). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 20 Apr 1990. Brazil: Ribeirão Grande, São Paulo.
- 2995 LG Leite and SP Wraight (C-1 Topo SP-2). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 20 Apr 1990. Brazil: Ribeirão Grande, São Paulo.
- 2996 LG Leite and SP Wraight (C-2 Test SP-5). *Empoasca kraemerii* [Homoptera: Cicadellidae]. 20 Apr 1990. Brazil: Ribeirão Grande, São Paulo.
- 3002 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 10, field # 1, Capão Bonito, São Paulo.
- 3003 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 4, field # 1, Capão Bonito, São Paulo.
- 3004 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 2, field # 2, Capão Bonito, São Paulo.
- 3005 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Apr 1990. Brazil: treatment plot # 1, field # 1, Capão Bonito, São Paulo.
- 3006 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 10, field # 1, Capão Bonito, São Paulo.
- 3007 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 2, field # 1, Capão Bonito, São Paulo.
- 3008 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 2, field # 2, Capão Bonito, São Paulo.
- 3009 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 30 Apr 1990. Brazil: treatment plot # 1, field # 1, Capão Bonito, São Paulo.
- 3010 SP Wraight ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. Apr 1990. Brazil: treatment plot # 3, field # 1, Capão Bonito, São Paulo.

- 3011 SP Wright ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 30 Apr 1990. Brazil: control plot # 1, field # 1, Capão Bonito, São Paulo.
- 3012 SP Wright ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 7 May 1990. Brazil: treatment plot # 3, field # 1, Capão Bonito, São Paulo.
- 3013 SP Wright ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 10 May 1990. Brazil: control plot # 1, field # 1, Capão Bonito, São Paulo.
- 3021 H Firstencel (Yugo-1). Rec'd 21 Dec 1989. Location not specified. The Yugo mix, created by H. Firstencel, is a combination of the following 7 isolates: 2706, 2246, 2288, 2712, 2240, 2283, 2243.
- 3022 H Firstencel (Yugo-2). Rec'd 21 Dec 1989. Location not specified. The Yugo mix, created by H. Firstencel, is a combination of the following 7 isolates: 2706, 2246, 2288, 2712, 2240, 2283, 2243.
- 3023 H Firstencel (Brazil-1). Rec'd 21 Dec 1989. Location not specified. The Brazil mix, created by H. Firstencel, is a combination of the following 7 isolates: 1228, 1239, 1493, 1928, 1231, 1504, 1581.
- 3024 H Firstencel (Brazil-2). Rec'd 21 Dec 1989. Location not specified. The Brazil mix, created by H. Firstencel, is a combination of the following 7 isolates: 1228, 1239, 1493, 1928, 1231, 1504, 1581.
- 3026 DW Roberts ← LG Leite. *Empoasca kraemerii* [Homoptera: Cicadellidae]. 5 Apr 1990. Brazil.
- 3104 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 13 Sep 1990. USA: Hoffman field, strip # 1, Catherine, New York.
- 3105 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. 13 Sep 1990. USA: Hoffman field, strip # 1, Catherine, New York.
- 3114 [ARSEF 2709] G Mercadier and TJ Poprawski (8818A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 20 Sep 1988. Yugoslavia: Kovin.
- 3115 G Mercadier and TJ Poprawski (8819A). *Typhlocyba* sp. [Homoptera: Cicadellidae] on sugar beet. 20 Sep 1988. Yugoslavia: Kovin.
- 3116 [ARSEF 2703] G Mercadier and TJ Poprawski (8820A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Kovin.
- 3117 [ARSEF ?2702] TJ Poprawski (8824B). Reisolate of ARSEF 3150 passed through *Diuraphis noxia* [Homoptera: Aphididae]. Rec'd 27 Nov 1990. Laboratory manipulation.
- 3118 TJ Poprawski (8825B). Reisolate of ARSEF 3149 passed through *Musca autumnalis* [Diptera: Muscidae]. Rec'd 27 Nov 1990. Laboratory manipulation.
- 3119 [ARSEF 2701] G Mercadier and TJ Poprawski (8826). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3149 [ARSEF 2706] G Mercadier and TJ Poprawski (8825A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 22 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3150 G Mercadier and TJ Poprawski (8824A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 22 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3151 TJ Poprawski (8819B). *Empoasca vitis* [Homoptera: Cicadellidae]. Rec'd 27 Nov 1990. Laboratory manipulation. Reisolate of ARSEF 3225.
- 3159 G Mercadier and TJ Poprawski (8812B). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3160 G Mercadier and TJ Poprawski (8812C). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 23 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3161 [ARSEF ?2696] TJ Poprawski (8812D). Rec'd 11 Dec 1990. Laboratory manipulation.
- 3162 TJ Poprawski (8817A) ← IL Sivcev. *Empoasca vitis* [Homoptera: Cicadellidae]. 23 Sep 1988. Location not specified.
- 3163 [ARSEF ?2708] TJ Poprawski (8817B). *Diuraphis noxia* [Homoptera: Aphididae]. Rec'd 11 Dec 1990. Laboratory manipulation. Reisolate of ARSEF 3162.
- 3164 [ARSEF 2713] G Mercadier and TJ Poprawski (8823A). *Empoasca vitis* [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3165 G Mercadier and TJ Poprawski (8830A). *Empoasca vitis* [Homoptera: Cicadellidae] on cabbage. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3170 G Mercadier and TJ Poprawski (8842A). *Typhlocyba* sp. [Homoptera: Cicadellidae] on *Abutilon* sp. 20 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3171 [ARSEF 2700] G Mercadier and TJ Poprawski (8843A). *Typhlocyba* sp. [Homoptera: Cicadellidae] on sugar beet. 21 Sep 1988. Yugoslavia: Zemun, Belgrade.
- 3172 TJ Poprawski (8843B). *Empoasca vitis* [Homoptera: Cicadellidae]. Rec'd 11 Dec 1990. Laboratory manipulation. Reisolate of ARSEF 3171.
- 3204 GW Riethmacher (E3). *Plutella xylostella* [Lepidoptera: Plutellidae]. 5 Apr 1989. Philippines: La Trinidad, Benguet.
- 3205 GW Riethmacher (E5). *Plutella xylostella* [Lepidoptera: Plutellidae]. 7 Apr 1989. Philippines: La Trinidad, Benguet.
- 3206 GW Riethmacher (E6). *Plutella xylostella* [Lepidoptera: Plutellidae]. 3 May 1989. Philippines: La Trinidad, Benguet.
- 3213 M Wheeler (Yugo Mix Plate#1). Rec'd 27 Dec 1990. Location not specified. This culture was taken from a bubbler mixture of ARSEFs 2240, 2243, 2246, 2283, 2288, 2706, and 2712.

- 3214 M Wheeler (Yugo Mix Plate#2). Rec'd 27 Dec 1990. Location not specified. This culture was taken from a bubbler mixture of ARSEFs 2240, 2243, 2246, 2283, 2288, 2706, and 2712.
- 3217 SG Wraight and SP Wraight (Ef1590). Reisolate of ARSEF 1590 passed through *Empoasca fabae* [Homoptera: Cicadellidae]. Rec'd 22 Jan 1991. Laboratory manipulation.
- 3283 [ARSEF 3284] S Roberts (Champ90LH2To(B)). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 1990. USA: Champaign County, Illinois.
- 3284 [ARSEF 3283] S Roberts (Champ90LH2To(E)). *Empoasca fabae* [Homoptera: Cicadellidae] on alfalfa. 1990. USA: Champaign County, Illinois.
- 3355 M Wheeler. *Empoasca fabae* [Homoptera: Cicadellidae]. Rec'd 13 Jun 1991. Laboratory manipulation. Reisolate of 1019 after two passes through PLH.
- 3376 M Wheeler ← MH Griggs. *Empoasca fabae* [Homoptera: Cicadellidae]. 26 Jul 1991. USA: Game Farm Rd., Ithaca, New York.
- 3377 M Wheeler ← MH Griggs. *Empoasca fabae* [Homoptera: Cicadellidae]. 29 Jul 1991. USA: Game Farm Rd., Ithaca, New York.
- 3390 M Wheeler ← MH Griggs. *Empoasca fabae* [Homoptera: Cicadellidae]. 5 Aug 1991. USA: Game Farm Rd., Ithaca, New York.
- 3623 ATCC (32245) ← RG Kenneth (3029). *Empoasca* sp. [Homoptera: Cicadellidae] on citrus leaf. Rec'd 11 Mar 1992. Israel: Girat, Brenner.
- 3697 MH Griggs. *Empoasca fabae* [Homoptera: Cicadellidae]. Rec'd Spring 1992. Laboratory manipulation.
- 3737 I Ben-Ze'ev and A Uziel. *Therioaphis trifolii f. maculata* [Homoptera: Aphididae]. Aug 1985. Israel: Bet-Seham Valley.
- 4520 MH Griggs (PLH3284ows). *Empoasca fabae* [Homoptera: Cicadellidae]. 2 Jun 1994. USA: USPSNL, Ithaca, New York. Cadavers infected with ARSEF 3284 overwintered 1993-1994 and reisolated.
- 4781 [INIA 2330] J Eilenberg (KVL 608). *Epinotia aporema* [Lepidoptera: Tortricidae]. 7 May 1994. Uruguay.
- 4782 [INIA 2553] J Eilenberg (KVL 609). *Epinotia aporema* [Lepidoptera: Tortricidae]. 13 May 1994. Uruguay.
- 4783 [INIA 228] J Eilenberg (KVL 613). *Anacampsis humilis* [Lepidoptera: Gelechiidae]. Rec'd 13 Sep 1994. Uruguay.
- 4784 [INIA 2562] J Eilenberg (KVL 610). *Epinotia aporema* [Lepidoptera: Tortricidae]. 13 May 1994. Uruguay.
- 4785 [INIA 2377] J Eilenberg (KVL 611). *Epinotia aporema* [Lepidoptera: Tortricidae]. 7 May 1994. Uruguay.
- 5814 C López Lastra. Larva, *Epinotia aporema* [Lepidoptera: Tortricidae] on *Lupinus* sp. Rec'd 28 Aug 1998. Argentina: Los Hornos, La Plata, Buenos Aires.
- 6003 SR Sánchez Peña. Larva, *Trichoplusia ni* [Lepidoptera: Noctuidae] in a broccoli plot. Nov 1998. Mexico: Universidad Agraria Antonio Narro campus, Saltillo, Coahuila.
- 6303 R Alatorre Rosas (Jav.13). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6313 R Alatorre Rosas (Mina.2). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6314 R Alatorre Rosas (Mina.2-2). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6315 R Alatorre Rosas (Mina.16). *Plutella xylostella* [Lepidoptera: Plutellidae]. Rec'd 22 Oct 1999. Mexico: Guanajuato State.
- 6605 JL Hatting (Sample G). *Molopopterus theae* [Homoptera: Cicadellidae]. 4 Aug 1999. South Africa: Site grid reference S 32° 00' 30.4" E 18° 55' 15.6", Clanwilliam, Cape Province.
- 6917 C López Lastra (1). Larva, *Tuta absoluta* [Lepidoptera: Gelechidae] on *Lycopersicon esculentum* Miller, tomato in covered greenhouses. 12 Jun 2001. Argentina: Colonia Urquiza, La Plata, Buenos Aires.
- 7208 [CEP 052] C López Lastra. *Aphis fabae* [Homoptera: Aphididae] on *Solanum melongena* L., eggplant. 26 Mar 2003. Argentina: Colonia Urquiza, La Plata, Buenos Aires. **RESTRICTED ACCESS: consult Curator.**
- 7455 [CEP 130] C López Lastra. [Homoptera: Aphididae] on *Brassica oleracea* L., cabbage crop. 30 Mar 2004. Argentina: Arana, La Plata, Buenos Aires. **RESTRICTED ACCESS: consult Curator.**
- 7788 [CEP 172] C López Lastra ← AC Scorsetti. [Homoptera: Aphididae] on *Cynara cardunculus* L., artichoke crop. 12 Apr 2005. Argentina: General Mansilla, Partido Magdalena, Buenos Aires. **RESTRICTED ACCESS: consult Curator.**
- 7789 [CEP 173] C López Lastra ← AC Scorsetti. [Homoptera: Aphididae] on *Cynara cardunculus* L., artichoke crop. 8 Sep 2004. Argentina: Colonia Urquiza, La Plata, Buenos Aires. **RESTRICTED ACCESS: consult Curator.**
- 8466 AV Toledo (ZR062). Adult, [Diptera]. 13 May 2007. Argentina: La Plata, Buenos Aires.

Unidentified Entomophthorales sp.

Conidiobolus nr. *coronatus*

Host by Fungus

Unidentified Entomophthorales sp.

[Diptera: Tipulidae]
Unknown species 7227 7228 7229 7230

Basidiobolus sp.

[Anura: Bufonidae]
Bufo bufo 9894 9895 9896 9897 9898
9899 9906 9907 9908
[Anura: Dendrobatidae]
Dendrobates leucomelas 9888
[Anura: Discoglossidae]
Alytes 9903 9904 9905 9909 9910 9911
9912
Discoglossus 9900 9901 9902
[Anura: Microhylidae]
Dyscophus guineti 9887
[Anura: Ranidae]
Hylarana erythraea 9890
Hylarana glandulosa 9892
Hylarana labialis 9891 9893
[Caudata: Salamandridae]
Triturus marmoratus 9889
[Primates: Hominidae]
Homo sapiens 273

Basidiobolus haptosporus

[Diptera: Brachycera]
Unknown species 1347
[Primates: Hominidae]
Homo sapiens 261 272

Basidiobolus ranarum

[Lepidoptera: Lasiocampidae]
Dendrolimus spectabilis 1139

Batkoia sp.

[Coleoptera: Cantharidae]
Unknown species 5810
[Homoptera: Aphididae]
Acyrthosiphon pisum 3131
[Lepidoptera: Lasiocampidae]
Malacosoma disstria 7370
[Lepidoptera: Noctuidae]
Panolis flammea 6179

Batkoia apiculata

[Diptera: Sciaridae]
Unknown species 919 927 1660 1661
Bradyzia paupera 3225 3226
[Homoptera: Aphididae]
Acyrthosiphon kondoi 839
Acyrthosiphon pisum 2504 3136 3140
Brevicoryne brassicae 1146
Macrosiphum euphorbiae 174
Myzus ascalonicus 67
Myzus persicae 129
Rhopalosiphum maidis 3088 3091
Rhopalosiphum padi 3080 5994
[Homoptera: Cicadellidae]
Unknown species 5552
[Hymenoptera]
Unknown species 395

Batkoia gigantea

[Diptera: Tipulidae]
Tipula paludosa 214 215 403

Batkoia major

[Homoptera: Aphididae]
Unknown species 1427
[Homoptera: Cicadellidae]
Empoasca fabae 2936 3102 3103

Batkoia papillata(?)

[Diptera: Simuliidae]
Unknown species 7068

Conidiobolus sp.

[Coleoptera: Curculionidae]
Hypera variabilis 80 81
[Diptera: Anthomyiidae]
Unknown species 2494
Delia radicum 2672
[Diptera: Ptychopteridae]
Ptychoptera contaminata 2498
[Diptera: Tipulidae]
Tipula paludosa 6424
[Homoptera: Aphididae]
Unknown species 999 1426
Apis fabae 3383
Brevicoryne brassicae 2130
Eriosoma lanigerum 6659
Myzus persicae 3384
Schizaphis graminum 1967

[Homoptera: Cercopidae]

Unknown species 391
Deois 2147
Deois flavopicta 2148

[Homoptera: Cicadellidae]

Nephrotettix bipunctata cincticeps 605
606

[Homoptera: Cixiidae]

Oliarus dimidiatus 7786

[Homoptera: Delphacidae]

Nilaparvata lugens 211 517 522 564
595 596

[Homoptera: Membracidae]

Gargara 5404 5405 5406

[Hymenoptera]

Unknown species 2193

[Hymenoptera: Formicidae]

Solenopsis invicta 2819

[Isopoda: Oniscoidea]

Porcellio 1672

[Lepidoptera: Plutellidae]

Plutella xylostella 2771 2772 2815 2816
3208

[Lepidoptera: Tortricidae]

Choristoneura fumiferana 92 93 94
147 148

[Orthoptera: Tettigoniidae]

Unknown species 1477

[Primates: Hominidae]

Homo sapiens 2928

Conidiobolus coronatus

[Agaricales]
Volvariella volvacea 1147
[Araneida]
Unknown species 567 7010
[Coleoptera: Curculionidae]
Ceutorhynchus napi 1572 1573 1574
1575

[Collembola]
Unknown species 8023

[Dacrymycetales]
Unknown species 3087

[Diptera: Psychodidae]
Lutzomyia 3379
Lutzomyia sordelli 3414 3415

[Diptera: Sciaridae]
Lycoriella ingenua 9940 9941 9942

[Homoptera: Aphididae]
Acyrthosiphon pisum 1738
Metopolophium dirhodum 2812 2813
2814

[Homoptera: Cicadellidae]

Unknown species 419 421 422

Empoasca fabae 3099 3109

Nephrotettix bipunctata cincticeps 520
597

[Homoptera: Delphacidae]

Delphacodes haywardii 7203

Nilaparvata lugens 349 405 406 418
511 512 514 523 524 525 528 563
565 655 997 1876

[Hymenoptera: Formicidae]

Unknown species 7011

[Isoptera: Termitidae]

Nasutitermes corniger 8455

[Lepidoptera: Noctuidae]

Mocis latipes 1884

[Lepidoptera: Plutellidae]

Plutella xylostella 2730

[Lepidoptera: Tortricidae]

Epinotia aporema 4797

[Opiliones: Palpatores]

Unknown species 7012 7013

[Perissodactyla: Equidae]

Equus ferus caballus 2715

[Primates: Hominidae]

Homo sapiens 206

[Thysanoptera: Thripidae]

Unknown species 6512 9914

Frankliniella occidentalis 3222

Conidiobolus firmipilleus

[Lepidoptera: Plutellidae]
Plutella xylostella 2731

Conidiobolus lamprauges

[Perissodactyla: Equidae]

Equus ferus caballus 2338

Conidiobolus nr. coronatus

[Homoptera: Delphacidae]

Nilaparvata lugens 598 599 600 1742

1743

Sogatella furcifera 602

Host by Fungus

Conidiobolus obscurus

- [Homoptera: ?Aphididae]
Unknown species 243
- [Homoptera: Aphididae]
Unknown species 434
- Acyrthosiphon kondoi* 354 824
- Acyrthosiphon pisum* 832 834 1741
3132 3133 3134 3135 3137 3138
3139 3141
- Aphis* 124
- Aphis armata* 133 355
- Macrosiphum euphorbiae* 182
- Metopolophium dirhodum* 97 3092
- Rhopalosiphum maidis* 3089 3090
- Rhopalosiphum padi* 1131 5992
- Theroaphis maculata* 74
- Uroleucon* 121 122

Conidiobolus osmodes

- [Coleoptera: Curculionidae]
Hypera variabilis 79

Conidiobolus osmodes(?)

- [Homoptera: Aphididae]
Rhopalosiphum padi 5993

Conidiobolus pseudapiculatus

- [Diptera: Psilidae]
Psila rosae 2493 2496 2497 2502

Conidiobolus thrombooides

- [Diptera]
Unknown species 86 87
- [Diptera: Culicidae]
Culex pipiens pipiens 70
- [Diptera: Heliomyzidae]
Unknown species 5
- [Homoptera: Aphididae]
Unknown species 58 59 248 249 250
1006
- Acyrthosiphon pisum* 100 6662
- Aphis fabae* 42 242 244 245 246 247
630 631 632 633 634 635 1735
- Aphis glycines* 7209 7210 7211
- Aphis gossypii* 83 194
- Cavariella theobaldi* 101 102 363 1733
1734
- Diuraphis noxia* 4968
- Diuraphis tritici* 2914
- Macrosiphum euphorbiae* 40
- Metopolophium dirhodum* 2828 2829
2849 2850
- Myzus persicae* 2 39 41 57 63 99 649
- Rhopalosiphum insertum* 73
- Schizaphis graminum* 2955
- Theroaphis maculata* 15 29 115 208
- Uroleucon* 120
- [Homoptera: Cicadellidae]
Empoasca fabae 3129
- [Orthoptera: Acrididae]
Unknown species 22

Entomophaga sp.

- [Homoptera: Cicadellidae]
Empoasca kraemerii 1230
- Nephrotettix bipunctata cincticeps* 1126
- [Homoptera: Delphacidae]
Nilaparvata lugens 1881
- [Lepidoptera]
Unknown species 393

Entomophaga asiatica

- [Orthoptera: Acrididae]
Unknown species 1393
- Parapodisma* 1659

Entomophaga aulicae

- [Lepidoptera]
Unknown species 1140 1656
- [Lepidoptera: Arctiidae]
Spilosoma niveum 2372 2373 2374
- [Lepidoptera: Geometridae]
Enypia griseata 2000
Lambdina fiscellaria fiscellaria 1991
2900
Lambdina fiscellaria lugubrosa 1990
Rheumaptera hastata 2899

[Lepidoptera: Lasiocampidae]

Dendrolimus spectabilis 1655

[Lepidoptera: Lymantriidae]

Euproctis chrysorrhoea 7140 7141 7142
7143 7144 7145

Orgyia vetusta 4004 4005 4006 4007
4008

[Lepidoptera: Noctuidae]

Unknown species 3016

?*Heliothis* 251

Aedia leucomelas 198 998

Autographa gamma 2363 2365

Mamestra brassicae 1657 1751 2362
2367 2368 2369

Pseudaletia 1999

[Lepidoptera: Notodontidae]

Ellida caniplaga 2903

Heterocampa 2902

Heterocampa biundata 2905

Heterocampa guttivitta 2843 2904 3039
3212

[Lepidoptera: Pieridae]

Colias erate poliographus 2366

[Lepidoptera: Saturniidae]

Dryocampa rubicunda 2897

[Lepidoptera: Tortricidae]

Choristoneura fumiferana 51 164 165
166 167 168 172 1992 1993 1994

1995 1997 1998 2896 2898 2901

Entomophaga australiensis

[Homoptera: Cicadellidae]

Unknown species 743

Cicadella 328

Empoasca kraemerii 791

[Homoptera: Cicadidae]

Cicadetta puer 331 365

[Homoptera: Delphacidae]

Nilaparvata lugens 581

Entomophaga calopteni

- [Orthoptera: Acrididae]
Melanoplus bivittatus 390 408 497 498
- Melanoplus cuneatus* 623 626 646
- Melanoplus differentialis* 2522
- Melanoplus flavidus* 383
- Melanoplus packardii* 625

Entomophaga conglomerata

- [Diptera: Chironomidae]
Unknown species 2273

Entomophaga macleodii

- [Orthoptera: Acrididae]
Camnula pellucida 496 618 619 620
621 624 628 629 765 767 768 769
773 774 777 778 779 4948 4949
4950 4951 4952 4953
- Dissosteira carolina* 375 376 382 499

Entomophaga maimaiga

- [Lepidoptera: Lasiocampidae]
Malacosoma americanum 6170 6173
6174
- Malacosoma disstria* 4545
- [Lepidoptera: Lymantriidae]
Lymantria dispar 1390 1391 1392 1400
1658 2370 2371 2775 2779 2780
3052 3053 3828 3829 3830 3831
3832 3833 3834 3835 3913 4504
4505 4506 4507 4508 4509 4510
4549 4550 4551 4552 4553 4554
4555 5377 5378 5379 5380 5381
5382 5383 5384 5385 5386 5387
5388 5389 5390 5391 5392 5393
5394 5395 5396 5397 5398 5399
5400 5401 5564 5568 5570 6004
6005 6168 6169 6171 6172 6212
6218 6224 6253 6254 6255 6256
6257 6258 6264 6265 6266 6267
6268 6269 6270 6271 6272 6523
6524 6625 6626 6627 6628 6629
6630 6652 6653 6654 6655 6656
6657 6663 6664 6665 6666 6667
6668 6724 6725 6726 6727 6728
6729 7101 7102 7103 7104 7105
7106 7107 7108 7109 7110 7111
7112 7113 7114 7115 7116 7120
7121 7122 7123 7124 7125 7126
7127 7131 7132 7133 7134 7135
7136 7137 7138 7139 7183 7184
7185 7186 7187 7188 7189 7190
7352 7353

Entomophaga praxibuli

- [Homoptera: Cicadellidae]
Empoasca vitis 3058
- [Orthoptera: Acrididae]
Praxibulus 840

Entomophthora chromaphidis

- [Homoptera: Aphididae]
Acyrthosiphon kondoi 1860 1862 1863

Entomophthora culicis

- [Diptera: Chironomidae]
Unknown species 5811
- [Diptera: Nematocera]
Unknown species 387

Entomophthora muscae	Erynia curvispora	Neozygites sp.
[Diptera] Unknown species 392 6701 7371	[Diptera: Simuliidae] Unknown species 1754 3229	[Acari: Tetranychidae] <i>Tetranychus urticae</i> 662
[Diptera: Anthomyiidae] Unknown species 2087 2088 2678	[Trichoptera] Unknown species 3244	
<i>Botanophila fugax</i> 6712		
<i>Delia</i> 2089 2263 2264 2265 2266 2317		
<i>Delia antiqua</i> 3074		
<i>Delia platura</i> 707		
<i>Delia radicum</i> 2665 2668 2670 2674 2675 6274 6706 6707 6708 6709		
6710 6711 6717 6811 6814 6815 6818 6821		
[Diptera: Calliphoridae] <i>Pollenia rudis</i> 651		
[Diptera: Muscidae] Unknown species 5954		
<i>Coenosia tigrina</i> 6918		
<i>Musca domestica</i> 454 556 557 803 2014 2172 2542 5952 5953 6121 6122 6123 6124 6125 6126 6127 6128 6129 6130 6131 6132 6133 6134 6135 6136 6140 6141 6164 6165 6713 6714 6715 6716 6812 6813		
[Diptera: Syrphidae] Unknown species 826 2673		
Entomophthora planchoniana	Erynia sciarae	Neozygites parvispora
[Homoptera: Aphididae] <i>Ovatus crataegarius</i> 6251 6252	[Diptera: Mycetophilidae] Unknown species 1870	[Thysanoptera: Thripidae] <i>Thrips tabaci</i> 5620 5621
Entomophthora scatophagae	Eryniopsis caroliniana	Neozygites tetranychi
[Diptera: Scatophagidae] <i>Scatophaga stercoraria</i> 6704 6705	[Diptera: Tipulidae] <i>Tipula paludosa</i> 640 641 642	[Acari: Tetranychidae] <i>Tetranychus althaeae</i> 2677
Entomophthora schizophorae	Eryniopsis ptychopterae	Pandora sp.
[Diptera: Calliphoridae] <i>Pollenia</i> 6703 6816 6817	[Diptera: Ptychopteridae] <i>Ptychoptera contaminata</i> 2535 2671	[Diptera] Unknown species 5812
[Diptera: Muscidae] <i>Musca domestica</i> 5348 6137 6138 6139 6142 6143		[Lepidoptera: Plutellidae] <i>Plutella xylostella</i> 3201
[Diptera: Psilidae] <i>Psila rosae</i> 2540 2541 2667		
Entomophthora syrphi	Furia americana	Pandora blunckii
[Diptera: Syrphidae] <i>Melanostoma scalare</i> 6819 6820 <i>Platycheirus clypeatus</i> 6702 <i>Triglyphus primus</i> 5955	[Diptera] Unknown species 742 1240 1242 2192 2194	[Coleoptera: Elateridae] <i>Athalia rosae</i> 915 917 920 1715 1716 1717 1718
Entomophthora thripidum	Furia gastropachae	[Lepidoptera: Plutellidae] <i>Plutella</i> 3075 <i>Plutella maculipennis</i> 217 <i>Plutella xylostella</i> 1000 2824 3200 3202 6293 6294 6295 6296 6297 6298 6299 6300 6301 6302 6304 6305 6306 6307 6308 6309 6310 6311 6312 6316
[Thysanoptera: Thripidae] <i>Thrips tabaci</i> 5868 6517 6518 6519 6520 6521 6522 6525	[Lepidoptera: Unknown species 2906 [Lepidoptera: Lasiocampidae] <i>Malacosoma disstria</i> 5541 5542 5543 5544 5545 5546 5547 5869 5870 5871 5872 8926	
Erynia aquatica	Furia ithacensis	Pandora delphacis
[Diptera: Culicidae] Unknown species 764	[Diptera: Empididae] Unknown species 1339 1340	[Hemiptera: Miridae] Unknown species 3062
<i>Aedes</i> 750		
Erynia conica	Furia neopyralidarum	[Homoptera: Cicadellidae] Unknown species 1238 1936
[Diptera: Chironomidae] Unknown species 2274 2405	[Lepidoptera] Unknown species 1145	<i>Empoasca fabae</i> 3072 3093 3094 3095 3096 3106 3107
[Diptera: Simuliidae] Unknown species 1752 1753 2275	Furia pieris	<i>Nephrotettix cincticeps</i> 458 459 460 461 478
<i>Simulium</i> 1439	[Lepidoptera: Pieridae] <i>Pieris rapae</i> 781	<i>Recilia dorsalis</i> 659 660
	Furia virescens	[Homoptera: Delphacidae] <i>Nilaparvata lugens</i> 134 575 579 580 657 664 665 666 667 668 669 670 672 673 674 676 682 686 698 713 716 1124 1132 1133 1264 1268 1730 1731 2091
	[Hemiptera: Miridae] <i>Notostira elongata</i> 394	<i>Sogatella furcifera</i> 593 603 2092 2093 2095 2096 2409 6538 6539
	[Lepidoptera] Unknown species 427	<i>Sogatodes pusanus</i> 2094
	[Lepidoptera: Noctuidae] Unknown species 470 1129	[Homoptera: Membracidae] <i>Spissistilus festinus</i> 2028 3484
		[Lepidoptera: Noctuidae] <i>Mamestra brassicae</i> 1265
	Macrobiotophthora vermicola	
	[Rhabditida: Rhabditidae] <i>Cruznema lambdiense</i> 650	
	Massospora cicadina	
	[Homoptera: Cicadidae] <i>Magicicada septendecim</i> 374	

Host by Fungus

Pandora dipterigena
Zoophthora radicans

Pandora dipterigena

- [Diptera]
 - Unknown species 131 1720 1921 1923
- [Diptera: ?Sciaridae]
 - Unknown species 1887
- [Diptera: Brachycera]
 - Unknown species 1422
- [Diptera: Nematocera]
 - Unknown species 397
- [Trichoptera]
 - Unknown species 2406

Pandora heteropterae

- [Hemiptera: Miridae]
 - Lygus lineolaris* 9266

Pandora kondoiensis

- [Homoptera: Aphididae]
 - Acyrthosiphon kondoi* 369 825 828 836 837

Pandora neoaphidis

- [Hemiptera: Miridae]
 - Lygus* 1570
- [Homoptera: Aphididae]
 - Unknown species 78 381 1695 1696 2016 2298 6902
 - Acyrthosiphon pisum* 827 830 838 1598 1603 1605 1609 2017 2018 2583 2584 2585 2587 2588 2589 2591 2592 2593 2594 2754 2755 2756 2757 2758 2760 2761 2762 2763 2766 2767 2768 2769 2773 2781 2782 2783 2784 2837 2838 2839 2840 2842 2844 2845 2846 2847 2848 2851 2852 2853 2854 2855 2856 2865 2866 2867 2868 2870 2872 2873 3234 3237 3240 4934 6631 7937

Aphidula 1610 1615

Aphis 128 3410

Aphis fabae 608 609 610 611 612 613 614 636 637 638 639 1606 1611 1981 1985 2019 2020 3238 3241 5995

Aphis glycines 7212 7213 7214 7226 8607

Brevicoryne brassicae 1613 1616 1617 1784 1785 1786 1824 1825 1826 1827 2108 2109 2110 2112 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2128 2280 2293 5371 5372 5373 5374

Dactynotus formosanus 1137

Diuraphis noxia 3081 3082 3126 3174 3175

Hyalopterus pruni 1596

Hyperomyzus lactucae 829 833 835

Macrosiphum 1607 1612

Macrosiphum akebiae 1134

Macrosiphum euphorbiae 181

Macrosiphum rosae 1986 1987

Metopolophium dirhodum 2874 2875 2876 3365 3367 5707 5708

Microlophium carnosum 7938

Myzus 1601 1602

Myzus nicotinae 3411 3412 3459

- Myzus persicae* 1600 2085 2086 3248 3249 3250 3251
- Schizaphis graminum* 3366
- Sitobion* 1597 1604
- Sitobion avenae* 5403 6166
- Uroleucon formosanus* 993

Pandora nouryi

- [Homoptera: Aphididae]
 - Unknown species 199
 - Acyrthosiphon kondoi* 362
 - Lipaphis erysimi* 8930 8931
 - Theroaphis maculata* 366

Schizangiella sp.

- [Squamata: Colubridae]
 - Elaphe* 2237 2239

Schizangiella serpentis

- [Squamata: Colubridae]
 - Elaphe obsoleta* 8000 8047
- [Squamata: Viperidae]
 - Crotalus horridus* 203

Strongwellsea castrans

- [Diptera: Anthomyiidae]
 - Delia radicum* 3282 3485

Zoophthora sp.

- [Dermaptera: Forficulidae]
 - Forficula auricularia* 3486 3487 3488
- [Homoptera: Aphididae]
 - Unknown species 7454

Zoophthora anglica

- [Coleoptera: Carabidae]
 - Trechus quadrifasciatus* 1739
- [Coleoptera: Elateridae]
 - Agriotes sputator* 396 2505
- [Hemiptera: Miridae]
 - Notostira elongata* 916 926

Zoophthora aphidis

- [Homoptera: Aphididae]
 - Anoecia corni* 425

Zoophthora lanceolata

- [Diptera: Brachycera]
 - Unknown species 468
- [Diptera: Nematocera]
 - Unknown species 426 469

Zoophthora occidentalis

- [Homoptera: Aphididae]
 - Acyrthosiphon pisum* 2841 3027 3028 3029 3071 3073
 - Macrosiphum euphorbiae* 207

Zoophthora phalloides

- [Homoptera: Aphididae]
 - Brevicoryne brassicae* 2281
 - Myzus rannaculinum* 352

Zoophthora phytonomi

- [Coleoptera: Curculionidae]
 - Hypera postica* 3342 3343 3344
 - Hypera punctata* 202 2188
 - Hypera variabilis* 113 191 192

Zoophthora radicans

- [Diptera]
 - Unknown species 388 1337 2499 2500 2501 2503 2506 2523 2554 8466
- [Diptera: Anthomyiidae]
 - Delia radicum* 2666
- [Diptera: Nematocera]
 - Unknown species 1336 1428
- [Hemiptera: Miridae]
 - Dicyphus pallidus* 389
- [Homoptera: Aphididae]
 - Unknown species 7455 7788 7789
 - Aphis fabae* 7208
 - Brachycaudus amygdalinus* 75
 - Capitophorus* 822
 - Diuraphis noxia* 3163
 - Drepanosiphum aceris* 914 1130
 - Metopolophium dirhodum* 2811
 - Theroaphis maculata* 103 104 105 106 107 108 109 110 111 112 114 139 237 238 239 359 370 379 823
 - Theroaphis trifolii f. maculata* 3737

- [Homoptera: Cercopidae]
 - Unknown species 800
- [Homoptera: Cicadellidae]
 - Unknown species 1239 1263 1495 1587 1591 2196 2549 2551 2552
- Empoasca* 2241 2242 2243 2244 2245 2246 2282 2283 2284 2285 2286 2287 2288 2289 3623
- Empoasca fabae* 1018 1019 1020 1021 1261 1262 1938 2400 2550 2716 2717 2718 2719 2720 2977 2978 2979 2980 3104 3105 3283 3284 3355 3376 3377 3390 3697 4520
- Empoasca kraemerii* 789 790 1227 1228 1229 1231 1232 1233 1234 1236 1237 1492 1493 1494 1496 1497 1498 1499 1500 1501 1502 1503 1504 1541 1542 1543 1544 1581 1582 1583 1584 1585 1586 1588 1589 1590 1593 1594 1595 1928 1929 1930 1931 1932 1933 1934 1935 1937 2994 2995 2996 3002 3003 3004 3005 3006 3007 3008 3009 3010 3011 3012 3013 3026
- Empoasca vitis* 2696 2700 2701 2702 2703 2706 2708 2709 2712 2713 3114 3116 3119 3149 3150 3151 3159 3160 3162 3164 3165 3172
- Hauptida distinguenda* 2256 2257 2258 2259 2260 2261 2262
- Molopopterus theae* 6605
- Typhlocyba* 3115 3170 3171
- [Homoptera: Delphacidae]
 - Delphacodes striatella* 1050
 - Nilaparvata lugens* 685 1125 1136
- [Homoptera: Psyllidae]
 - Psyllida etrioza* 126
 - Trioza urticae* 1719
- [Hymenoptera: Diprionidae]
 - Neodiprion tsugae* 13
- [Lepidoptera]
 - Unknown species 404
- [Lepidoptera: Gelechiidae]
 - Tuta absoluta* 6917

- [Lepidoptera: Gelechiidae]
Anacampsis humilis 4783
- [Lepidoptera: Geometridae]
Lambdina fiscellaria fiscellaria 72
- [Lepidoptera: Noctuidae]
Sesamia inferens 2411
Trichoplusia ni 6003
- [Lepidoptera: Pieridae]
Pieris brassicae 1341 1342 1343 1344
1345 1346
- [Lepidoptera: Plutellidae]
Plutella xylostella 1048 1100 2732 2893
3204 3205 3206 6303 6313 6314
6315
- [Lepidoptera: Pyralidae]
Cnaphalocrocis medinalis 1699 2410
- [Lepidoptera: Tortricidae]
Choristoneura fumiferana 21 44 45 50
52 88 141 142 143 144 145 146
163 221 223 224 225 226 227 228
229 230 231 232 233 234 235 407
- Epinotia aporema* 4781 4782 4784 4785
5814
- Merophysa divulsana* 1082
- Ptycholoma aeriferana* 1674 1675
- Tortrix viridana* 68

Fungus by Host and Location

Acari: Tetranychidae
Diptera: Muscidae

Animalia

Arthropoda • Arachnida

Acari: Tetranychidae

- Mononychellus tanajoa*
Brazil, Bahia
Neozygites floridana(?) 6219 6220
6221
- Tetranychus althaeae*
Czech Republic
Neozygites tetranychi 2677
- Tetranychus urticae*
USA, New York
Neozygites floridana(?) 5201 5202
5376
- USA, North Carolina
Neozygites sp. 662

Araneida

- Canada, Alberta
Conidiobolus coronatus 7010
- Indonesia, Sumatera Utara
Conidiobolus coronatus 567
- Canada, Alberta
Conidiobolus coronatus 7012 7013

Arthropoda • Crustacea

Isopoda: Oniscoidea

- Porcellio* sp.
USA, California
Conidiobolus sp. 1672

Arthropoda • Entognatha

Collembola

- USA, North Carolina
Conidiobolus coronatus 8023

Arthropoda • Insecta

Coleoptera: Cantharidae

- Denmark
Batkoaa sp. 5810

Coleoptera: Carabidae

- Trechus quadristriatus*
United Kingdom
Zoophthora anglica 1739

Coleoptera: Curculionidae

- Ceutorhynchus napi*
Switzerland
Conidiobolus coronatus 1572 1573
1574 1575
- Hypera postica*
USA, Illinois
Zoophthora phytonomi 3342 3343
3344
- Hypera punctata*
USA, Delaware
Zoophthora phytonomi 2188

- USA, New York
Zoophthora phytonomi 202
- Hypera variabilis*
Israel
Conidiobolus osmodes 79
- Conidiobolus* sp. 80 81
- Zoophthora phytonomi* 113 191 192

Coleoptera: Elateridae

- Agriotes sputator*
Denmark
Zoophthora anglica 2505
- Switzerland
Zoophthora anglica 396
- Athalia rosae*
Switzerland
Pandora blunckii 915 917 920 1715
1716 1717 1718

Dermoptera: Forficulidae

- Forficula auricularia*
Denmark
Zoophthora sp. 3486 3487 3488

Diptera

- Argentina
Zoophthora radicans 8466
- Brazil, Goiás
Furia americana 742 2192 2194
- Brazil, Paraná
Furia americana 1240 1242
- Denmark
Entomophthora muscae 6701
Pandora sp. 5812
Zoophthora radicans 2499 2500
2501 2503 2506 2523 2554
- Poland
Conidiobolus thromboides 86 87
Zoophthora radicans 1337
- Switzerland
Entomophthora muscae 392
Pandora dipterigena 1720
Zoophthora radicans 388
- USA, Maine
Pandora dipterigena 131
- USA, New York
Entomophthora muscae 7371
Pandora dipterigena 1921 1923

Diptera: ?Sciariidae

- USA, New York
Pandora dipterigena 1887

Diptera: Anthomyiidae

- Denmark
Conidiobolus sp. 2494
Entomophthora muscae 2678
- France
Entomophthora muscae 2087 2088
- Botanophila fugax*
Denmark
Entomophthora muscae 6712
- Delia* sp.
France
Entomophthora muscae 2089 2263
2264 2265 2266 2317

- Delia antiqua*
USA, New York
Entomophthora muscae 3074
- Delia platura*
United Kingdom
Entomophthora muscae 707

Diptera: radicum

- Denmark
Conidiobolus sp. 2672
Entomophthora muscae 2665 2668
2670 2674 2675 6706 6707 6708
6709 6710 6711 6717 6811 6814
6815 6818 6821
Strongwellsea castrans 3282 3485
Zoophthora radicans 2666
- Norway
Entomophthora muscae 6274

Diptera: Brachycera

- France
Zoophthora lanceolata 468
- Poland
Basidiobolus haptosporus 1347
Pandora dipterigena 1422

Diptera: Calliphoridae

- Pollenia* sp.
Denmark
Entomophthora schizophorae 6703
6816 6817
- Pollenia rudis*
USA, New York
Entomophthora muscae 651

Diptera: Chironomidae

- Denmark
Entomophthora culicis 5811
- United Kingdom
Erynia conica 2405
- USA, New York
Entomophaga conglomerata 2273
Erynia conica 2274

Diptera: Culicidae

- USA, New York
Erynia aquatica 764
- Aedes* sp.
USA, New York
Erynia aquatica 750
- Culex pipiens pipiens*
Czech Republic
Conidiobolus thromboides 70

Diptera: Empididae

- Poland
Furia ithacensis 1339 1340

Diptera: Heliomyzidae

- USA, Maine
Conidiobolus thromboides 5

Diptera: Muscidae

- Denmark
Entomophthora muscae 5954
- Coenosia tigrina*
Denmark
Entomophthora muscae 6918

<i>Musca domestica</i>	<i>Lycoriella ingenua</i>	Homoptera: Aphididae
Denmark	Mexico	Argentina
<i>Entomophthora muscae</i> 2542 5952 5953 6121 6122 6123 6124 6125 6126 6127 6128 6129 6130 6131 6132 6133 6134 6135 6136 6140 6141 6164 6165 6713 6714 6715 6716 6812 6813	<i>Conidiobolus coronatus</i> 9940 9941 9942	<i>Zoophthora radicans</i> 7455 7788 7789 <i>Zoophthora</i> sp. 7454
<i>Entomophthora schizophorae</i> 6137 6138 6139 6142 6143	Diptera: Simuliidae	Australia
USA, California	Canada, Newfoundland	<i>Pandora neoaphidis</i> 381
<i>Entomophthora muscae</i> 2172	<i>Batkoia papillata</i> (?) 7068	Commonwealth of Independent States
USA, Nebraska	Canada, Québec	<i>Conidiobolus thromboides</i> 58 59 248 249 250
<i>Entomophthora schizophorae</i> 5348	<i>Erynia curvispora</i> 3229	France
USA, New York	Switzerland	<i>Conidiobolus obscurus</i> 434
<i>Entomophthora muscae</i> 454 556 557 803 2014	<i>Erynia conica</i> 1752 1753 <i>Erynia curvispora</i> 1754	Israel
Diptera: Mycetophilidae	USA, New York	<i>Pandora neoaphidis</i> 78
Location not specified	<i>Erynia conica</i> 2275	Japan
<i>Erynia sciarae</i> 1870	<i>Simulium</i> sp.	<i>Conidiobolus</i> sp. 999
Diptera: Nematocera	United Kingdom	<i>Conidiobolus thromboides</i> 1006
Poland	<i>Erynia conica</i> 1439	USA, California
<i>Zoophthora radicans</i> 1336 1428	Diptera: Syrphidae	<i>Pandora neoaphidis</i> 6902
Switzerland	Denmark	USA, Maine
<i>Entomophthora culicis</i> 387	<i>Entomophthora muscae</i> 2673	<i>Pandora nouri</i> 199
<i>Pandora dipterigena</i> 397	USA, New York	Yugoslavia
<i>Zoophthora lanceolata</i> 426 469	<i>Entomophthora muscae</i> 826	<i>Conidiobolus</i> sp. 1426 <i>Pandora neoaphidis</i> 1695
Diptera: Psilidae	<i>Melanostoma scalare</i>	Yugoslavia, Belgrade
<i>Psila rosae</i>	Denmark	<i>Batkoia major</i> 1427 <i>Pandora neoaphidis</i> 1696 2016 2298
Denmark	<i>Entomophthora syrphi</i> 6819 6820	Acyrtosiphon kondoi
<i>Conidiobolus pseudapiculatus</i> 2493 2496 2497 2502	<i>Platycheirus clypeatus</i>	Australia
<i>Entomophthora schizophorae</i> 2540 2541 2667	Denmark	<i>Batkoia apiculata</i> 839 <i>Conidiobolus obscurus</i> 354 824
Diptera: Psychodidae	<i>Entomophthora syrphi</i> 6702	<i>Entomophthora chromaphidis</i> 1860 1862 1863
Switzerland	<i>Tritylaphus primus</i>	<i>Pandora kondoiensis</i> 369 825 828 836 837
<i>Erynia ovispora</i> 399 400	Denmark	<i>Pandora nouri</i> 362
<i>Lutzomyia</i> sp.	<i>Entomophthora syrphi</i> 5955	Acyrtosiphon pisum
Guatemala	Diptera: Tipulidae	Australia
<i>Conidiobolus coronatus</i> 3379	USA, New York	<i>Conidiobolus obscurus</i> 834 <i>Pandora neoaphidis</i> 827 830 838
<i>Lutzomyia sordelli</i>	Unidentified Entomophthorales sp.	Commonwealth of Independent States
Costa Rica	7227 7228 7229 7230	<i>Conidiobolus thromboides</i> 100
<i>Conidiobolus coronatus</i> 3414 3415	<i>Tipula paludosa</i>	Denmark
Diptera: Ptychopteridae	Switzerland	<i>Batkoia apiculata</i> 2504
<i>Ptychoptera contaminata</i>	<i>Batkoia gigantea</i> 214 215 403	France
Denmark	<i>Eryniopsis caroliniana</i> 640 641 642	<i>Pandora neoaphidis</i> 1598 1605 1609
<i>Conidiobolus</i> sp. 2498	United Kingdom	Laboratory manipulation
<i>Eryniopsis ptychopterae</i> 2535 2671	<i>Conidiobolus</i> sp. 6424	<i>Conidiobolus obscurus</i> 832 1741 <i>Pandora neoaphidis</i> 4934
Diptera: Scatophagidae	Hemiptera: Miridae	Russian Federation
<i>Scatophaga stercoraria</i>	USA, New York	<i>Conidiobolus thromboides</i> 6662
Denmark	<i>Pandora delphacis</i> 3062	Spain
<i>Entomophthora scatophagae</i> 6704 6705	<i>Dicyphus pallidus</i>	<i>Pandora neoaphidis</i> 1603
Diptera: Sciaridae	Switzerland	Switzerland
Switzerland	<i>Zoophthora radicans</i> 389	<i>Pandora neoaphidis</i> 7937
<i>Batkoia apiculata</i> 919 927 1660 1661	<i>Lygus</i> sp.	United Kingdom
<i>Bradyzia paupera</i>	USA, New York	<i>Conidiobolus coronatus</i> 1738
Denmark	<i>Pandora neoaphidis</i> 1570	USA, Idaho
<i>Batkoia apiculata</i> 3225 3226	<i>Lygus lineolaris</i>	<i>Pandora neoaphidis</i> 3240 6631
Homoptera: ?Aphididae	USA, Arkansas	USA, New York
Poland	<i>Pandora heteropterae</i> 9266	<i>Batkoia apiculata</i> 3136 3140 <i>Batkoia</i> sp. 3131
	<i>Notostira elongata</i>	<i>Conidiobolus obscurus</i> 3132 3133 3134 3135 3137 3138 3139 3141
	Switzerland	<i>Pandora neoaphidis</i> 2583 2584 2585 2587 2588 2589 2591 2592 2593

Fungus by Host and Location

Homoptera: Aphididae

2594 2754 2755 2756 2757 2758	France	<i>Zoophthora occidentalis</i> 207
2760 2761 2762 2763 2766 2767	<i>Pandora neoaphidis</i> 1613 1616 1617	<i>Macrosiphum rosae</i>
2768 2769 2773 2781 2782 2783	Japan	France
2784 2837 2838 2839 2840 2842	<i>Batkoia apiculata</i> 1146	<i>Pandora neoaphidis</i> 1986 1987
2844 2845 2846 2847 2848 2851	Yugoslavia	<i>Metopolophium dirhodum</i>
2852 2853 2854 2855 2856 2865	<i>Pandora neoaphidis</i> 1784 1785 1786	France
2866 2867 2868 2870 2872 2873	1824 1825 1826 1827 2124 2128	<i>Conidiobolus obscurus</i> 97
<i>Zoophthora occidentalis</i> 2841 3027	Yugoslavia, Belgrade	South Africa
3028 3029 3071 3073	<i>Conidiobolus</i> sp. 2130	<i>Pandora neoaphidis</i> 5707 5708
USA, Washington	<i>Pandora neoaphidis</i> 2108 2109 2110	USA, Idaho
<i>Pandora neoaphidis</i> 3234 3237	2112 2114 2115 2116 2117 2118	<i>Conidiobolus coronatus</i> 2812 2813
Yugoslavia, Voyvodina	2119 2120 2121 2122 2280 2293	2814
<i>Pandora neoaphidis</i> 2017 2018	<i>Zoophthora phalloides</i> 2281	<i>Conidiobolus thrombooides</i> 2828
<i>Anoezia corni</i>	Yugoslavia, Bosnia and Herzegovina	2829 2849 2850
Switzerland	<i>Pandora neoaphidis</i> 2123	<i>Pandora neoaphidis</i> 2874 2875 2876
<i>Zoophthora aphidis</i> 425	<i>Capitophorus</i> sp.	3365 3367
<i>Aphidula</i> sp.	France	<i>Zoophthora radicans</i> 2811
France	<i>Zoophthora radicans</i> 822	USA, Montana
<i>Pandora neoaphidis</i> 1610 1615	<i>Cavariella theobaldi</i>	<i>Conidiobolus obscurus</i> 3092
<i>Aphis</i> sp.	United Kingdom	<i>Microlophilum carnosum</i>
Canada, Québec	<i>Conidiobolus thrombooides</i> 101 102	Switzerland
<i>Conidiobolus obscurus</i> 124	363 1733 1734	<i>Pandora neoaphidis</i> 7938
<i>Pandora neoaphidis</i> 128	<i>Dactynotus formosanus</i>	<i>Myzus</i> sp.
USA, Washington	Japan	Spain
<i>Pandora neoaphidis</i> 3410	<i>Pandora neoaphidis</i> 1137	<i>Pandora neoaphidis</i> 1601 1602
<i>Aphis armata</i>	<i>Diuraphis noxia</i>	<i>Myzus ascalonicus</i>
France	France	France
<i>Conidiobolus obscurus</i> 133 355	<i>Pandora neoaphidis</i> 3126 3174 3175	<i>Batkoia apiculata</i> 67
<i>Aphis fabae</i>	Laboratory manipulation	<i>Myzus nicotinae</i>
Argentina	<i>Zoophthora radicans</i> 3163	USA, Kentucky
<i>Zoophthora radicans</i> 7208	South Africa	<i>Pandora neoaphidis</i> 3411 3412 3459
Denmark	<i>Conidiobolus thrombooides</i> 4968	<i>Myzus persicae</i>
<i>Pandora neoaphidis</i> 5995	USA, Colorado	Commonwealth of Independent States
France	<i>Pandora neoaphidis</i> 3081 3082	<i>Conidiobolus thrombooides</i> 63 99
<i>Pandora neoaphidis</i> 1606 1611 1981	<i>Diuraphis tritici</i>	Portugal
1985	USA, Montana	<i>Pandora neoaphidis</i> 1600
Poland	<i>Conidiobolus thrombooides</i> 2914	Spain
<i>Conidiobolus thrombooides</i> 242 244	<i>Drepanosiphum aceris</i>	<i>Pandora neoaphidis</i> 2085 2086
245 246 247 630 631 632 633 634	Switzerland	USA, Arkansas
635	<i>Zoophthora radicans</i> 914 1130	<i>Pandora neoaphidis</i> 3248 3249 3250
<i>Pandora neoaphidis</i> 608 609 610	<i>Eriosoma lanigerum</i>	3251
611 612 613 614 636 637 638 639	South Africa	USA, Florida
United Kingdom	<i>Conidiobolus</i> sp. 6659	<i>Conidiobolus thrombooides</i> 39
<i>Conidiobolus thrombooides</i> 42 1735	<i>Hyalopterus pruni</i>	USA, Maine
USA, Washington	France	<i>Batkoia apiculata</i> 129
<i>Conidiobolus</i> sp. 3383	<i>Pandora neoaphidis</i> 1596	<i>Conidiobolus thrombooides</i> 2 41 57
<i>Pandora neoaphidis</i> 3238 3241	<i>Hyperomyzus lactucae</i>	USA, Washington
Yugoslavia, Voyvodina	Australia	<i>Conidiobolus</i> sp. 3384
<i>Pandora neoaphidis</i> 2019 2020	<i>Pandora neoaphidis</i> 829 835	USA, Wisconsin
<i>Aphis glycines</i>	Chile	<i>Conidiobolus thrombooides</i> 649
USA, New York	<i>Pandora neoaphidis</i> 833	<i>Myzus rannaculinum</i>
<i>Conidiobolus thrombooides</i> 7209	<i>Lipaphis erysimi</i>	France
7210 7211	PR China	<i>Zoophthora phalloides</i> 352
<i>Pandora neoaphidis</i> 7212 7213 7214	<i>Pandora nouri</i> 8930 8931	<i>Ovatus crataegarius</i>
7226 8607	<i>Macrosiphum</i> sp.	Denmark
<i>Aphis gossypii</i>	France	<i>Entomophthora planchoniana</i> 6251
Israel	<i>Pandora neoaphidis</i> 1607 1612	6252
<i>Conidiobolus thrombooides</i> 83 194	<i>Macrosiphum akebiae</i>	<i>Rhopalosiphum insertum</i>
<i>Brachycaudus amygdalinus</i>	Japan	France
Israel	<i>Pandora neoaphidis</i> 1134	<i>Conidiobolus thrombooides</i> 73
<i>Zoophthora radicans</i> 75	<i>Macrosiphum euphorbiae</i>	<i>Rhopalosiphum maidis</i>
<i>Brevicoryne brassicae</i>	USA, Maine	USA, Montana
Denmark	<i>Batkoia apiculata</i> 174	<i>Batkoia apiculata</i> 3088 3091
<i>Pandora neoaphidis</i> 5371 5372 5373	<i>Conidiobolus obscurus</i> 182	<i>Conidiobolus obscurus</i> 3089 3090
5374	<i>Conidiobolus thrombooides</i> 40	
<i>Pandora neoaphidis</i> 181	<i>Pandora neoaphidis</i> 181	

Homoptera: Aphididae***Homoptera: Cixiidae*****Fungus by Host and Location**

<i>Rhopalosiphum padi</i>	
Denmark	
<i>Batkoia apiculata</i> 5994	
<i>Conidiobolus obscurus</i> 5992	
<i>Conidiobolus osmodes</i> (?) 5993	
Japan	
<i>Conidiobolus obscurus</i> 1131	
USA, Colorado	
<i>Batkoia apiculata</i> 3080	
<i>Schizaphis graminum</i>	
Canada, Alberta	
<i>Conidiobolus thrombooides</i> 2955	
USA, Idaho	
<i>Pandora neoaphidis</i> 3366	
USA, Michigan	
<i>Conidiobolus</i> sp. 1967	
<i>Sitobion</i> sp.	
<i>Pandora neoaphidis</i> 1597	
France	
<i>Pandora neoaphidis</i> 1604	
<i>Sitobion avenae</i>	
Denmark	
<i>Pandora neoaphidis</i> 5403 6166	
<i>Theroaphis maculata</i>	
Australia	
<i>Zoophthora radicans</i> 359 370 823	
Israel	
<i>Zoophthora radicans</i> 103 104 105	
106 107 108 109 110 111 112 114	
139	
Mexico	
<i>Zoophthora radicans</i> 379	
USA	
<i>Pandora nouryi</i> 366	
USA, California	
<i>Conidiobolus obscurus</i> 74	
<i>Conidiobolus thrombooides</i> 15 29 115	
208	
USA, New York	
<i>Zoophthora radicans</i> 237 238 239	
<i>Theroaphis trifolia f. maculata</i>	
Israel	
<i>Zoophthora radicans</i> 3737	
<i>Uroleucon</i> sp.	
Canada, Québec	
<i>Conidiobolus obscurus</i> 121 122	
<i>Conidiobolus thrombooides</i> 120	
<i>Uroleucon formosanus</i>	
Japan	
<i>Pandora neoaphidis</i> 993	
Homoptera: Cercopidae	
Switzerland	
<i>Conidiobolus</i> sp. 391	
USA, New York	
<i>Zoophthora radicans</i> 800	
<i>Deois</i> sp.	
Brazil, Mato Grosso	
<i>Conidiobolus</i> sp. 2147	
<i>Deois flavopicta</i>	
Brazil, Mato Grosso	
<i>Conidiobolus</i> sp. 2148	

Homoptera: Cicadellidae	
<i>Batkoia apiculata</i> 5552	
Brazil, Goiás	
<i>Entomophaga australiensis</i> 743	
<i>Pandora delphacis</i> 1238 1936	
<i>Zoophthora radicans</i> 1495 1587	
1591 2196	
Brazil, Paraná	
<i>Zoophthora radicans</i> 1239	
Japan	
<i>Zoophthora radicans</i> 1263	
Philippines	
<i>Conidiobolus coronatus</i> 419 421 422	
USA, Illinois	
<i>Zoophthora radicans</i> 2549 2551	
2552	
<i>Cicadella</i> sp.	
Australia	
<i>Entomophaga australiensis</i> 328	
<i>Empoasca</i> sp.	
Israel	
<i>Zoophthora radicans</i> 3623	
Yugoslavia	
<i>Zoophthora radicans</i> 2282 2283	
2284 2285 2288 2289	
Yugoslavia, Belgrade	
<i>Zoophthora radicans</i> 2241 2242	
2243 2244 2245 2246 2286 2287	
<i>Empoasca fabae</i>	
Laboratory manipulation	
<i>Zoophthora radicans</i> 3355	
Location not specified	
<i>Zoophthora radicans</i> 2400	
USA, Illinois	
<i>Zoophthora radicans</i> 1938 2550	
2716 2717 2718 2719 2720 3283	
3284	
USA, Michigan	
<i>Zoophthora radicans</i> 2977 2978	
2979 2980	
USA, New York	
<i>Batkoia major</i> 2936 3102 3103	
<i>Conidiobolus coronatus</i> 3099 3109	
<i>Conidiobolus thrombooides</i> 3129	
<i>Pandora delphacis</i> 3072 3093 3094	
3095 3096 3106 3107	
<i>Zoophthora radicans</i> 3104 3105	
3376 3377 3390 4520	
USA, Wisconsin	
<i>Zoophthora radicans</i> 1018 1019	
1020 1021 1261 1262	
<i>Empoasca fabae</i>	
Laboratory manipulation	
<i>Zoophthora radicans</i> 3697	
<i>Empoasca kraemeri</i>	
Brazil	
<i>Zoophthora radicans</i> 3026	
Brazil, Goiás	
<i>Entomophaga</i> sp. 1230	
<i>Zoophthora radicans</i> 789 790 1492	
1493 1494 1496 1497 1498 1499	
1500 1501 1502 1503 1504 1541	
1542 1543 1544 1581 1582 1583	
1584 1585 1586 1588 1589 1590	
1593 1594 1595 1928 1929 1930	
1931 1932 1933 1934 1935 1937	

Brazil, Rio Grande do Norte	
<i>Entomophaga australiensis</i> 791	
Brazil, Rio Grande do Sul	
<i>Zoophthora radicans</i> 1227	
Brazil, Santa Catarina	
<i>Zoophthora radicans</i> 1228 1229	
1231 1232 1233 1234 1236 1237	
Brazil, São Paulo	
<i>Zoophthora radicans</i> 2994 2995	
2996 3002 3003 3004 3005 3006	
3007 3008 3009 3010 3011 3012	
3013	
<i>Empoasca vitis</i>	
Laboratory manipulation	
<i>Entomophaga praxibuli</i> 3058	
<i>Zoophthora radicans</i> 3151 3172	
Location not specified	
<i>Zoophthora radicans</i> 3162	
Yugoslavia	
<i>Zoophthora radicans</i> 2703 2709	
2712 3114 3116	
Yugoslavia, Belgrade	
<i>Zoophthora radicans</i> 2696 2700	
2701 2702 2706 2708 2713 3119	
3149 3150 3159 3160 3164 3165	
<i>Hauptida distinguenda</i>	
France	
<i>Zoophthora radicans</i> 2256 2257	
2258 2259 2260 2261 2262	
<i>Molopopterus theae</i>	
South Africa	
<i>Zoophthora radicans</i> 6605	
<i>Nephrotettix bipunctata cincticeps</i>	
Indonesia, Sulawesi Selatan, Celebes	
<i>Conidiobolus coronatus</i> 597	
<i>Conidiobolus</i> sp. 605 606	
Malaysia	
<i>Conidiobolus coronatus</i> 520	
Philippines	
<i>Entomophaga</i> sp. 1126	
<i>Nephrotettix cincticeps</i>	
Philippines	
<i>Pandora delphacis</i> 458 459 460 461	
478	
<i>Recilia dorsalis</i>	
PR China	
<i>Pandora delphacis</i> 659 660	
<i>Typhlocyba</i> sp.	
Yugoslavia	
<i>Zoophthora radicans</i> 3115	
Yugoslavia, Belgrade	
<i>Zoophthora radicans</i> 3170 3171	
Homoptera: Cicadidae	
<i>Cicadetta puer</i>	
Australia	
<i>Entomophaga australiensis</i> 331 365	
<i>Magicicada septendecim</i>	
USA, New York	
<i>Massospora cicadina</i> 374	
Homoptera: Cixiidae	
<i>Oliarus dimidiatus</i>	
Argentina	
<i>Conidiobolus</i> sp. 7786	

Fungus by Host and Location

Homoptera: Delphacidae
Lepidoptera: Lymantriidae

Homoptera: Delphacidae

- Delphacodes haywardii*
 - Argentina
 - Conidiobolus coronatus* 7203
- Delphacodes striatella*
 - Japan
 - Zoophthora radicans* 1050
- Nilaparvata lugens*
 - Australia
 - Conidiobolus coronatus* 349
 - India
 - Conidiobolus* nr. *coronatus* 1742
 - 1743
 - Conidiobolus* sp. 211
 - Pandora delphacis* 1730 1731
- Indonesia, Jawa Barat, Java
 - Conidiobolus coronatus* 1876
 - Conidiobolus* nr. *coronatus* 598
 - Pandora delphacis* 2091
- Indonesia, Lombok Island
 - Pandora delphacis* 575 579
- Indonesia, Sulawesi Selatan, Celebes
 - Conidiobolus coronatus* 563 565
 - Conidiobolus* sp. 564
- Indonesia, Sumatera Utara, Sumatra
 - Entomophaga australiensis* 581
 - Pandora delphacis* 580
- Indonesia, Yogyakarta, Java
 - Conidiobolus* nr. *coronatus* 599 600
 - Conidiobolus* sp. 595 596
- Japan
 - Conidiobolus coronatus* 997
 - Pandora delphacis* 134 1124 1132
 - 1133 1264 1268
 - Zoophthora radicans* 1125 1136
- Malaysia
 - Conidiobolus coronatus* 512 514 523
 - 524
 - Conidiobolus* sp. 517 522
- Philippines
 - Conidiobolus coronatus* 405 406 418
 - 511
- PR China
 - Conidiobolus coronatus* 655
 - Pandora delphacis* 657 664 665 666
 - 667 668 669 670 672 673 674 676
 - 682 686 698 713 716
 - Zoophthora radicans* 685
- Solomon Islands
 - Entomophaga* sp. 1881
- Thailand
 - Conidiobolus coronatus* 525 528
- Sogatella furcifera*
 - Indonesia, Jawa Barat, Java
 - Pandora delphacis* 2092 2093 2095
 - 2096 2409
- Indonesia, Sulawesi Selatan, Celebes
 - Conidiobolus* nr. *coronatus* 602
 - Conidiobolus* sp. 604
 - Pandora delphacis* 593 603
- PR China
 - Pandora delphacis* 6538 6539
- Sogatodes pusanus*
 - Indonesia, Jawa Barat, Java
 - Pandora delphacis* 2094

Homoptera: Membracidae

- Gargara* sp.
 - Canada, Québec
 - Conidiobolus* sp. 5405 5406
 - USA, Vermont
 - Conidiobolus* sp. 5404
- Spissistilus festinus*
 - USA, Alabama
 - Pandora delphacis* 2028
 - USA, Arkansas
 - Pandora delphacis* 3484

Homoptera: Psyllidae

- Psylida etriozia*
 - Canada, Québec
 - Zoophthora radicans* 126
- Trioza urticae*
 - Switzerland
 - Zoophthora radicans* 1719

Hymenoptera

- Brazil, Goiás
 - Conidiobolus* sp. 2193
- Switzerland
 - Batkoia apiculata* 395

Hymenoptera: Diprionidae

- Neodiprion tsugae*
 - USA, Alaska
 - Zoophthora radicans* 13

Hymenoptera: Formicidae

- Canada, Alberta
 - Conidiobolus coronatus* 7011
- Solenopsis invicta*
 - USA, Texas
 - Conidiobolus* sp. 2819

Isoptera: Termitidae

- Nasutitermes corniger*
 - Conidiobolus coronatus* 8455

Lepidoptera

- Canada
 - Furia gastropachae* 2906
- Japan
 - Entomophaga aulicae* 1140 1656
 - Furia neopyralidarum* 1145
- Switzerland
 - Entomophaga* sp. 393
 - Furia virescens* 427
 - Zoophthora radicans* 404

Lepidoptera: Arctiidae

- Spilosoma niveum*
 - Japan
 - Entomophaga aulicae* 2372 2373
 - 2374

Lepidoptera: Gelechiidae

- Tuta absoluta*
 - Argentina
 - Zoophthora radicans* 6917

Lepidoptera: Gelechiidae

- Anacampsis humilis*
 - Uruguay
 - Zoophthora radicans* 4783

Lepidoptera: Geometridae

- Enypia griseata*
 - Canada, British Columbia
 - Entomophaga aulicae* 2000
- Lambdina fiscellaria fiscellaria*
 - Canada, Newfoundland
 - Entomophaga aulicae* 1991 2900
 - Zoophthora radicans* 72
- Lambdina fiscellaria lugubrosa*
 - Canada, British Columbia
 - Entomophaga aulicae* 1990
- Rheumaptera hastata*
 - Canada, Ontario
 - Entomophaga aulicae* 2899

Lepidoptera: Lasiocampidae

- Dendrolimus spectabilis*
 - Japan
 - Basidiobolus ranarum* 1139
 - Entomophaga aulicae* 1655
- Malacosoma americanum*
 - Entomophaga maimaiga* 6170 6173
 - 6174
- Malacosoma disstria*
 - Entomophaga maimaiga* 4545
 - Canada, Ontario
 - Furia gastropachae* 5869 5870 5871
 - 5872
 - USA, Maryland
 - Furia gastropachae* 5545 5546
 - USA, New York
 - Batkoia* sp. 7370
 - Entomophaga aulicae* 3602
 - Furia gastropachae* 5541 5542 5543
 - 5544 5547
 - USA, Vermont
 - Furia gastropachae* 8926

Lepidoptera: Lymantriidae

- Euproctis chrysorrhoea*
 - USA, Maine
 - Entomophaga aulicae* 7140 7141
 - 7142 7143 7144 7145
 - Lymantria dispar*
 - Canada, Ontario
 - Entomophaga maimaiga* 3913
 - Japan
 - Entomophaga maimaiga* 1390 1391
 - 1392 1400 1658 2370 2371 6171
 - 6172 6212 6224 6253 6254 6255
 - 6256 6257 6258 6264 6265 6266
 - 6267 6268 7104 7105 7112 7113
 - 7114 7116 7185 7186 7187 7188
 - 7189
 - PR China
 - Entomophaga maimaiga* 7139 7183
 - 7184
 - Russian Federation
 - Entomophaga maimaiga* 7127
 - USA, Connecticut
 - Entomophaga maimaiga* 2775
 - USA, Maryland
 - Entomophaga maimaiga* 5377 5378
 - 5379 5380 5381 5382 5383 5384
 - 5385 5386 5387 5388 5389 5390

Lepidoptera: Lymantriidae**Orthoptera: Acrididae****Fungus by Host and Location**

USA, Massachusetts
Entomophaga maimaiga 2779 5564
 6004 6005 6269 6270 6271 6272
 7123 7124 7125 7126 7137 7138

USA, Michigan
Entomophaga maimaiga 6523 6524
 6626 6627 6628 6629 6630 6652
 6653 6654 6655 6656 6657 6663
 6664 6665 6666 6667 6668 6724
 6725 6726 6727 6728 6729 7101
 7102 7103 7106 7107 7108 7109
 7110 7111 7115

USA, New Hampshire
Entomophaga maimaiga 2780
 USA, New York
Entomophaga maimaiga 3052 3053
 3828 3829 3830 3831 3832 3833
 3834 3835 4508 4509 4510 4549
 4550 4551 5391 5392 5393 5394
 5395 5396 5397 5398 5399 5400
 5401 6625

USA, Pennsylvania
Entomophaga maimaiga 7120 7121
 7122 7131 7132 7133 7134 7135
 7136 7190 7352 7353

USA, Virginia
Entomophaga maimaiga 4504 4505
 4506 4507 4552 4553 4554 4555
 5568 5570 6169 6218

USA, West Virginia
Entomophaga maimaiga 6168

Orgyia vetusta
 USA, California
Entomophaga aulicae 4004 4005
 4006 4007 4008

Lepidoptera: Noctuidae

Switzerland
Furia virescens 470 1129
 USA, New York
Entomophaga aulicae 3016

?*Heliothis* sp.
 USA, Georgia
Entomophaga aulicae 251

Aedia leucomelas
 Japan
Entomophaga aulicae 198 998

Autographa gamma
 Japan
Entomophaga aulicae 2363 2365

Mamestra brassicae
 Japan
Entomophaga aulicae 1657 1751
 2362 2367 2368 2369

Pandora delphacis 1265

Mocis latipes
 Brazil, Goiás
Conidiobolus coronatus 1884

Panolis flammea
 United Kingdom
Batkoia sp. 6179

Pseudaleitia sp.
 Canada, Ontario
Entomophaga aulicae 1999

Sesamia inferens
 Indonesia, Jawa Barat, Java
Zoophthora radicans 2411

Trichoplusia ni
 Mexico
Zoophthora radicans 6003

Lepidoptera: Notodontidae

Ellida caniplaga
 Canada, Ontario
Entomophaga aulicae 2903

Heterocampa sp.
 Canada, Ontario
Entomophaga aulicae 2902

Heterocampa biundata
 Canada, Ontario
Entomophaga aulicae 2905

Heterocampa guttivitta
 Canada, Ontario
Entomophaga aulicae 2904

USA, New York
Entomophaga aulicae 3039 3212

USA, Vermont
Entomophaga aulicae 2843

Lepidoptera: Pieridae
Colias erate poliographus
 Japan
Entomophaga aulicae 2366

Pieris brassicae
 Poland
Zoophthora radicans 1341 1342
 1343 1344 1345 1346

Pieris rapae
 USA, New York
Furia pieris 781

Lepidoptera: Plutellidae

Plutella sp.
 Australia
Pandora blunckii 3075

Plutella maculipennis
 Germany
Pandora blunckii 217

Plutella xylostella
 Japan
Pandora blunckii 1000
Zoophthora radicans 1048

Malaysia
Zoophthora radicans 1100

Mexico
Pandora blunckii 6293 6294 6295
 6296 6297 6298 6299 6300 6301
 6302 6304 6305 6306 6307 6308
 6309 6310 6311 6312 6316

Zoophthora radicans 6303 6313
 6314 6315

Philippines
Conidiobolus coronatus 2730
Conidiobolus firmipilleus 2731

Conidiobolus sp. 2771 2772 2815
 2816 3208

Pandora blunckii 2824 3200 3202
Pandora sp. 3201

Zoophthora radicans 2732 2893

3204 3205 3206

Lepidoptera: Pyralidae

Cnaphalocrocis medinalis
 Indonesia, Jawa Barat, Java
Zoophthora radicans 2410

Philippines
Zoophthora radicans 1699

Lepidoptera: Saturniidae

Dryocampa rubicunda
 Canada, Ontario
Entomophaga aulicae 2897

Lepidoptera: Tortricidae

Choristoneura fumiferana
 Canada, Newfoundland
Entomophaga aulicae 2896 2898

Canada, Ontario
Entomophaga aulicae 1992 1993
 1994 1995 1997 1998 2901

Zoophthora radicans 407

USA, Maine
Conidiobolus sp. 92 93 94 147 148
Entomophaga aulicae 51 164 165
 166 167 168 172

Zoophthora radicans 21 44 45 50 52
 88 141 142 143 144 145 146 163
 221 223 224 225 226 227 228 229
 230 231 232 233 234 235

Epinotia aporema

Argentina
Zoophthora radicans 5814

Uruguay
Conidiobolus coronatus 4797
Zoophthora radicans 4781 4782
 4784 4785

Merophysa divulsana

Australia
Zoophthora radicans 1082

Ptycholoma aeriferana

Japan
Zoophthora radicans 1674 1675

Tortrix viridana

France
Zoophthora radicans 68

Orthoptera: Acrididae

Japan
Entomophaga asiatica 1393

USA, Montana
Conidiobolus thromboides 22

Cannula pellucida

USA, Arizona
Entomophaga macleodii 496 618
 619 620 621 624 628 629 765 767
 768 769 773 774 777 778 779

USA, Oregon

Entomophaga macleodii 4948 4949
 4950 4951 4952 4953

Dissosteira carolina

Canada, Ontario
Entomophaga macleodii 375 376

USA, New York

Entomophaga macleodii 382 499

Melanoplus bivittatus

USA, Arizona
Entomophaga calopteni 497

Fungus by Host and Location

Orthoptera: Acrididae
Agaricales

USA, Montana	<i>Entomophaga calopteni</i> 408
USA, South Dakota	<i>Entomophaga calopteni</i> 498
USA, Wyoming	<i>Entomophaga calopteni</i> 390
<i>Melanoplus cuneatus</i>	
USA, Arizona	<i>Entomophaga calopteni</i> 623 626 646
<i>Melanoplus differentialis</i>	
USA, Kansas	<i>Entomophaga calopteni</i> 2522
<i>Melanoplus flavidus</i>	
USA, Wyoming	<i>Entomophaga calopteni</i> 383
<i>Melanoplus packardii</i>	
USA, Arizona	<i>Entomophaga calopteni</i> 625
<i>Parapodisma</i> sp.	
Japan	<i>Entomophaga asiatica</i> 1659
<i>Praxibulus</i> sp.	
Australia	<i>Entomophaga praxibili</i> 840
Orthoptera: Tettigoniidae	
Brazil, Goiás	
	<i>Conidiobolus</i> sp. 1477
Thysanoptera: Thripidae	
USA, Vermont	
	<i>Conidiobolus coronatus</i> 6512 9914
<i>Frankliniella occidentalis</i>	
USA, Florida	
	<i>Conidiobolus coronatus</i> 3222
<i>Thrips tabaci</i>	
Germany	
	<i>Entomophthora thripidum</i> 5868 6517 6518 6519 6520 6521 6522 6525
Switzerland	
	<i>Neozygites parvispora</i> 5620 5621
Trichoptera	
Canada, Québec	
	<i>Erynia curvispora</i> 3244
United Kingdom	
	<i>Erynia rhizospora</i> 1440 1441 1443 <i>Pandora dipterigena</i> 2406
USA, Maine	
	<i>Erynia rhizospora</i> 219
USA, New York	
	<i>Erynia rhizospora</i> 801 2276
Wales	
	<i>Erynia rhizospora</i> 1442
Trichoptera: Hydropsychidae	
United Kingdom	
	<i>Erynia rhizospora</i> 2407

Chordata • Amphibia

Anura: Bufonidae	
<i>Bufo bufo</i>	
United Kingdom	<i>Basidiobolus</i> sp. 9894 9895 9896 9897 9898 9899 9906 9907 9908
Anura: Dendrobatidae	
<i>Dendrobates leucomelas</i>	
Switzerland	<i>Basidiobolus</i> sp. 9888
Anura: Discoglossidae	
<i>Alytes</i> sp.	
United Kingdom	<i>Basidiobolus</i> sp. 9903 9904 9905 9909 9910 9911 9912
<i>Discoglossus</i> sp.	
Italy	<i>Basidiobolus</i> sp. 9900 9901 9902
Anura: Microhylidae	
<i>Dyscophus guineti</i>	
Switzerland	<i>Basidiobolus</i> sp. 9887
Anura: Ranidae	
<i>Hylarana erythraea</i>	
Malaysia	<i>Basidiobolus</i> sp. 9890
<i>Hylarana glandulosa</i>	
Malaysia	<i>Basidiobolus</i> sp. 9892
<i>Hylarana labialis</i>	
Malaysia	<i>Basidiobolus</i> sp. 9891 9893
Caudata: Salamandridae	
<i>Triturus marmoratus</i>	
Switzerland	<i>Basidiobolus</i> sp. 9889

Chordata • Mammalia

Perissodactyla: Equidae	
<i>Equus ferus caballus</i>	
USA, Louisiana	<i>Conidiobolus coronatus</i> 2715
	<i>Conidiobolus lamprauges</i> 2338
Primates: Hominidae	
<i>Homo sapiens</i>	
Indonesia	<i>Basidiobolus haptosporus</i> 261 272
Location not specified	<i>Basidiobolus</i> sp. 273
Nigeria	<i>Conidiobolus coronatus</i> 206
USA, Texas	<i>Conidiobolus</i> sp. 2928

Nemata • Secernentea

Rhabditida: Rhabditidae	
<i>Cruznema lambdienne</i>	
USA, Tennessee	<i>Macrobiotophthora vermicola</i> 650

Vertebrata • Reptilia

Squamata: Colubridae	
<i>Elaphe</i> sp.	
Germany	<i>Schizangiella</i> sp. 2237 2239
<i>Elaphe oboleta</i>	
USA, Virginia	<i>Schizangiella serpentis</i> 8000 8047
Squamata: Viperidae	
<i>Crotalus horridus</i>	
USA, Maryland	<i>Schizangiella serpentis</i> 203

Fungi

Basidiomycota • Hymenomycetes

Agaricales	
<i>Volvicella volvacea</i>	
USA, Puerto Rico	<i>Conidiobolus coronatus</i> 1147
	<i>Conidiobolus coronatus</i> 3087

Antarctica

Victoria Land
 Conidiobolus antarcticus 6913

Argentina

Buenos Aires
 Conidiobolus coronatus 7203
 Conidiobolus sp. 7786
 Zoophthora radicans 5814 6917 7208
 7455 7788 7789 8466
 Zoophthora sp. 7454

Australia

Conidiobolus sp. 2924 2925 2926 2927
 Pandora neoaphidis 381
Australian Capital Territory
 Pandora neoaphidis 835
New South Wales
 Batkoaa apiculata 839
 Conidiobolus coronatus 471
 Conidiobolus obscurus 354 824 834
 Entomophaga praxibuli 840
 Pandora kondoiensis 828 836 837
 Pandora neoaphidis 827 829 838
 Zoophthora radicans 359 370 823
Queensland
 Conidiobolus coronatus 349
 Entomophaga australiensis 328 331
 365
 Entomophthora chromaphidis 1860
 1862 1863
 Pandora blunckii 3075
 Pandora kondoiensis 369 825
 Pandora nouryi 362
 Zoophthora radicans 1082
Victoria
 Pandora neoaphidis 830

Barbados

Basidiobolus sp. 3764

Brazil

Zoophthora radicans 3026
Bahia
 Neozygites floridana(?) 6219 6220
 6221
Goiás
 Conidiobolus coronatus 1884
 Conidiobolus sp. 1477 2193
 Entomophaga australiensis 743 1888
 Entomophaga sp. 1230
 Furia americana 742 2192 2194
 Pandora delphacis 1238 1936
 Zoophthora radicans 789 790 1492
 1493 1494 1495 1496 1497 1498 1499
 1500 1501 1502 1503 1504 1541 1542
 1543 1544 1581 1582 1583 1584 1585
 1586 1587 1588 1589 1590 1591 1593
 1594 1595 1928 1929 1930 1931 1932
 1933 1934 1935 1937 2196
Mato Grosso
 Conidiobolus sp. 2147 2148
Paraná
 Furia americana 1240 1242
 Zoophthora radicans 1239
Rio Grande do Norte
 Entomophaga australiensis 791

Rio Grande do Sul

Zoophthora radicans 1227
Santa Catarina
 Zoophthora radicans 1228 1229 1231
 1232 1233 1234 1236 1237
São Paulo
 Zoophthora radicans 2994 2995 2996
 3002 3003 3004 3005 3006 3007 3008
 3009 3010 3011 3012 3013

Canada

Furia gastropachae 2906
Alberta
 Conidiobolus coronatus 7010 7011
 7012 7013
 Conidiobolus sp. 3402
 Conidiobolus thrombooides 2955
British Columbia
 Entomophaga aulicae 1990 2000
Newfoundland
 Batkoaa papillata(?) 7068
 Entomophaga aulicae 1991 2896 2898
 2900
 Zoophthora radicans 72
Ontario
 Entomophaga aulicae 1992 1993 1994
 1995 1997 1998 1999 2897 2899 2901
 2902 2903 2904 2905
 Entomophaga macleodii 375 376
 Entomophaga maimaiga 3913
 Furia gastropachae 5869 5870 5871
 5872
 Zoophthora radicans 407
Québec
 Conidiobolus obscurus 121 122 124
 Conidiobolus sp. 5405 5406
 Conidiobolus thrombooides 120
 Erynia curvispora 3229 3244
 Pandora neoaphidis 128
 Zoophthora radicans 126

Chile

Easter Island
 Pandora neoaphidis 833

Commonwealth of Independent States

Conidiobolus thrombooides 58 59 63 64
 100 248 249 250
Russia
 Conidiobolus thrombooides 99

Costa Rica

Conidiobolus coronatus 274
 Conidiobolus sp. 3763
Guanacaste
 Conidiobolus coronatus 3414 3415

Czech Republic

Conidiobolus thrombooides 70
 Neozygites tetranychii 2677

Denmark

Batkoaa apiculata 3225 3226
 Batkoaa sp. 5810
 Pandora sp. 5812
Frederiksberg
 Strongwellsea castrans 3485
 Zoophthora sp. 3486 3487 3488
Jutland
 Entomophthora muscae 2542
 Entomophthora syrphi 6819 6820
Malmöhus
 Conidiobolus sp. 2494
 Entomophthora muscae 2668
Roskilde
 Conidiobolus sp. 2498
 Eryniopsis ptychopterae 2535 2671
Vestsjælland
 Conidiobolus pseudapiculatus 2493
 2496 2497 2502
 Entomophthora schizophorae 2540
 2541 2667
 Zoophthora anglica 2505
 Zoophthora radicans 2499 2500 2501
 2503 2506 2523 2554
Zealand
 Batkoaa apiculata 5994
 Conidiobolus obscurus 5992
 Conidiobolus osmodes(?) 5993
 Conidiobolus sp. 2672
 Entomophthora culicis 5811
 Entomophthora muscae 2665 2670
 2673 2674 2675 5952 5953 5954 6121
 6122 6123 6124 6125 6126 6127 6128
 6129 6130 6131 6132 6133 6134 6135
 6136 6140 6141 6164 6165 6701 6706
 6707 6708 6709 6710 6711 6712 6713
 6714 6715 6716 6717 6811 6812 6813
 6814 6815 6818 6821 6918
 Entomophthora planchoniana 6251
 6252
 Entomophthora scatophagae 6704
 6705
 Entomophthora schizophorae 6137
 6138 6139 6142 6143 6703 6816 6817
 Entomophthora syrphi 5955 6702
 Pandora neoaphidis 5371 5372 5373
 5374 5403 5995 6166
 Strongwellsea castrans 3282
 Zoophthora radicans 2666
Zeeland
 Batkoaa apiculata 2504
 Entomophthora muscae 2678

France

Batkoaa apiculata 67
 Conidiobolus obscurus 434
 Pandora neoaphidis 1596 1604 1605
 1606 1607 1609 1610 1611 1612 1613
 1615 1616 1617 1981 1985 1986 1987
 Zoophthora lanceolata 468
Avignon
 Pandora neoaphidis 1598
Charente
 Zoophthora radicans 2256 2257 2258
 2259 2260 2261 2262
Essonne
 Zoophthora radicans 68

Geographical Origin

France
Philippines

Hérault	Israel	Zoophthora radicans 1048
<i>Pandora neoaphidis</i> 3126 3174 3175	<i>Conidiobolus osmodes</i> 79	
Ille-et-Vilaine	<i>Conidiobolus</i> sp. 80 81	
<i>Conidiobolus obscurus</i> 97	<i>Conidiobolus thromboides</i> 83 194	
<i>Zoophthora phalloides</i> 352	<i>Pandora neoaphidis</i> 78	
La Varenne	<i>Zoophthora phytonomi</i> 113 191 192	
<i>Conidiobolus thromboides</i> 73	<i>Zoophthora radicans</i> 103 104 114 139	
Manche	3737	
<i>Zoophthora radicans</i> 822	Brenner	
Moselle	<i>Zoophthora radicans</i> 3623	
<i>Conidiobolus obscurus</i> 133 355	Central District	
Yvelines	<i>Zoophthora radicans</i> 75	
<i>Entomophthora muscae</i> 2087 2088	Hamerkaz	
2089 2263 2264 2265 2266 2317	<i>Zoophthora radicans</i> 105 106 107 108	
	109 110 111 112	
Germany	Italy	
Petén	Sardinia	
<i>Conidiobolus coronatus</i> 3379	<i>Basidiobolus</i> sp. 9900 9901 9902	
Braunschweig		
<i>Entomophthora thripidum</i> 5868 6517	Japan	
6518 6519 6520 6521 6522 6525	Chiba Prefecture	
Hesse	<i>Entomophaga aulicae</i> 2373 2374	
<i>Pandora blunckii</i> 217	<i>Entomophaga maimaiga</i> 2370 2371	
Guatemala	6212 6224 6253 6254 6255 6256 6257	
Petén	6264 6267	
<i>Conidiobolus</i> sp. 2237 2239	Fukui Prefecture	
Braunschweig	<i>Entomophaga asiatica</i> 1393 1659	
<i>Entomophthora thripidum</i> 5868 6517	Fukuoka Prefecture	
6518 6519 6520 6521 6522 6525	<i>Conidiobolus coronatus</i> 997	
Hesse	<i>Conidiobolus obscurus</i> 1131	
<i>Pandora blunckii</i> 217	<i>Pandora blunckii</i> 1004	
India	<i>Pandora delphacis</i> 134 1101 1124 1132	
Andhra Pradesh	1133 1264 1268	
<i>Conidiobolus</i> nr. <i>coronatus</i> 1742 1743	<i>Pandora neoaphidis</i> 1134	
<i>Conidiobolus</i> sp. 211	<i>Zoophthora radicans</i> 1050 1125 1136	
<i>Pandora delphacis</i> 1730 1731	1263	
Karnataka	Hiroshima Prefecture	
<i>Conidiobolus bangalorensis</i> 449	<i>Entomophaga maimaiga</i> 7185 7186	
Indonesia	7187 7188 7189	
Basidiobolus haptosporus	Hokkaido Prefecture	
Basidiobolus sp.	<i>Entomophaga aulicae</i> 2362 2363 2365	
Jawa Barat, Java	2366 2367 2368 2369	
<i>Conidiobolus coronatus</i> 1876	<i>Zoophthora radicans</i> 1674 1675	
<i>Conidiobolus</i> nr. <i>coronatus</i> 598	Ibaraki Prefecture	
<i>Pandora delphacis</i> 2091 2092 2093	<i>Entomophaga aulicae</i> 1140 1655 1656	
2094 2095 2096 2409	1657 1751 2372	
<i>Zoophthora radicans</i> 2410 2411	<i>Entomophaga maimaiga</i> 6171 6172	
Lombok Island	6258 6265 6266 6268	
<i>Pandora delphacis</i> 575 579	<i>Furia neopyralidarum</i> 1145	
Sulawesi Selatan, Celebes	Ishikawa Prefecture	
<i>Conidiobolus coronatus</i> 563 565 597	<i>Entomophaga maimaiga</i> 1390 1391	
<i>Conidiobolus</i> nr. <i>coronatus</i> 602	1392 1400 1658	
<i>Conidiobolus</i> sp. 564 604 605 606	Iwate Prefecture	
<i>Pandora delphacis</i> 593 603	<i>Entomophaga maimaiga</i> 7104 7105	
Sumatera Utara	7112 7113 7114 7116	
<i>Conidiobolus coronatus</i> 567	Saitama Prefecture	
Sumatera Utara, Sumatra	<i>Basidiobolus ranarum</i> 1139	
<i>Entomophaga australiensis</i> 581	Shizuoka Prefecture	
<i>Pandora delphacis</i> 580	<i>Batkoia apiculata</i> 1146	
Yogyakarta, Java	Tokyo Prefecture	
<i>Conidiobolus</i> nr. <i>coronatus</i> 599 600	<i>Conidiobolus</i> sp. 999	
<i>Conidiobolus</i> sp. 595 596	<i>Conidiobolus thromboides</i> 1006	

Laguna	South Africa	<i>Entomophthora muscae</i> 707
<i>Conidiobolus coronatus</i> 405 406 418 419 421 422	Cape Province	<i>Erynia conica</i> 1439 2405
Manila	<i>Conidiobolus</i> sp. 6659	<i>Erynia rhizospora</i> 1440 1441 1443
<i>Conidiobolus coronatus</i> 511	<i>Zoophthora radicans</i> 6605	2407
<i>Entomophaga</i> sp. 1126	Orange Free State	<i>Pandora dipterigena</i> 2406
<i>Pandora delphacis</i> 458 459 460 461 478	<i>Conidiobolus thromboides</i> 4968	<i>Zoophthora anglica</i> 1739
<i>Zoophthora radicans</i> 1699	Western Cape Province	Scotland
Poland	<i>Pandora neoaphidis</i> 5707 5708	<i>Batkoia</i> sp. 6179
<i>Basidiobolus haptosporus</i> 1347	Spain	Uruguay
<i>Conidiobolus thromboides</i> 86 87 631 633 634 635	<i>Pandora neoaphidis</i> 1601 1602 1603 2085 2086	<i>Conidiobolus coronatus</i> 4797
<i>Furia ithacensis</i> 1339 1340	Sweden	<i>Zoophthora radicans</i> 4781 4782 4783
<i>Pandora dipterigena</i> 1422	<i>Zoophthora radicans</i> 189	4784 4785
<i>Pandora neoaphidis</i> 608 609 610 611 612 613 614 636 637	Switzerland	USA
<i>Zoophthora radicans</i> 1336 1337 1341 1342 1343 1344 1345 1346 1350 1428	<i>Basidiobolus</i> sp. 9887 9888 9889	<i>Conidiobolus coronatus</i> 205
Szczecin	<i>Batkoia apiculata</i> 395 919 927 1660 1661	<i>Pandora nouryi</i> 366
<i>Conidiobolus obscurus</i> 243	<i>Batkoia gigantea</i> 214 215 403	Alabama
<i>Conidiobolus thromboides</i> 242 244 245 246 247 630 632	<i>Conidiobolus coronatus</i> 1572 1573 1574 1575	<i>Pandora delphacis</i> 2028
<i>Pandora neoaphidis</i> 638 639	<i>Conidiobolus</i> sp. 391	Alaska
Portugal	<i>Entomophaga</i> sp. 393	<i>Zoophthora radicans</i> 13
<i>Pandora neoaphidis</i> 1600	<i>Entomophthora culicis</i> 387	Arizona
PR China	<i>Entomophthora muscae</i> 392	<i>Basidiobolus</i> sp. 5336
Heilongjiang	<i>Eryniopsis caroliniana</i> 640 641 642	<i>Entomophaga calopteni</i> 497 623 625 626 646
<i>Entomophaga maimaiga</i> 7139 7183 7184	<i>Erynia conica</i> 1752 1753	<i>Entomophaga macleodii</i> 496 618 619 620 621 624 628 629 765 767 768 769 773 774 777 778 779
Hunan	<i>Erynia curvispora</i> 1754	Arkansas
<i>Pandora delphacis</i> 664	<i>Erynia ovispora</i> 399 400	<i>Pandora delphacis</i> 3484
Hubei	<i>Furia virescens</i> 394 427 470 1129	<i>Pandora heteropterae</i> 9266
<i>Pandora delphacis</i> 665 666 667 669 676 698 713	<i>Pandora blunckii</i> 915 917 920	<i>Pandora neoaphidis</i> 3248 3249 3250 3251
<i>Zoophthora radicans</i> 685	<i>Pandora dipterigena</i> 397	California
Jiangsu	<i>Zoophthora anglica</i> 396 916 926	<i>Basidiobolus haptosporus</i> 262 264
<i>Pandora delphacis</i> 657 659 660 668 672 673 674 682 686 716	<i>Zoophthora aphidis</i> 425	<i>Basidiobolus microsporus</i> 265 267 268 269
Kwon Tung	<i>Zoophthora lanceolata</i> 426 469	<i>Basidiobolus ranarum</i> 260
<i>Conidiobolus coronatus</i> 655	<i>Zoophthora radicans</i> 388 389 404 914 1130	<i>Conidiobolus obscurus</i> 74
Yunnan Province	Schaffhausen	<i>Conidiobolus</i> sp. 1672
<i>Pandora nouryi</i> 8930 8931	<i>Pandora dipterigena</i> 1720	<i>Conidiobolus thromboides</i> 15 29 115 208
Zhejiang Province	<i>Pandora neoaphidis</i> 7938	<i>Entomophaga aulicae</i> 4004 4005 4006 4007 4008
<i>Pandora delphacis</i> 6538 6539	<i>Zoophthora radicans</i> 1719	<i>Entomophthora muscae</i> 2172
Zhijiang	Zurich	<i>Pandora neoaphidis</i> 6902
<i>Pandora delphacis</i> 670	<i>Neozygites parvispora</i> 5620 5621	Colorado
Republic of Korea	<i>Pandora blunckii</i> 1715 1716 1717 1718	<i>Batkoia apiculata</i> 3080
Kangwon-do	<i>Pandora neoaphidis</i> 7937 7939	<i>Pandora neoaphidis</i> 3081 3082
<i>Conidiobolus</i> sp. 5712	Thailand	Connecticut
Russian Federation	<i>Conidiobolus coronatus</i> 525 528	<i>Entomophaga maimaiga</i> 2775
Khabarovsk	United Kingdom	Delaware
<i>Entomophaga maimaiga</i> 7127	England	<i>Zoophthora phytonomi</i> 2188
Novosibirsk Region	<i>Basidiobolus ranarum</i> 6380 6382	Florida
<i>Conidiobolus thromboides</i> 6662	<i>Basidiobolus</i> sp. 9894 9895 9896 9897 9898 9899 9903 9904 9905 9906 9907 9908 9909 9910 9911 9912	<i>Basidiobolus ranarum</i> 5889 5890 5891 5892 5893 5894 5895 5896 5897 5898
Solomon Islands	<i>Conidiobolus adiaearetus</i> 6377	5899 5900 5901 5902 5903 5904 5905
Guadalcanal	<i>Conidiobolus coronatus</i> 1738 6379	5906 5907 5908 5909 5910 5911 5912
<i>Entomophaga</i> sp. 1881	<i>Conidiobolus firmipillicus</i> 6384	5913 5914 5915 5916 5917 5918 5919

Geographical Origin

USA

Yugoslavia

<i>Conidiobolus</i> sp. 3406 3407	<i>Zoophthora radicans</i> 2977 2978 2979	<i>Zoophthora radicans</i> 237 238 239 800
<i>Conidiobolus thromboides</i> 39	2980	3104 3105 3376 3377 3390 4520
Georgia	Montana	North Carolina
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I.S. 4 *Entomophaga maimaiga* 4549
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dah6DL1 *Basidiobolus* sp. 9888
dah8TM1 *Basidiobolus* sp. 9889
dahBR17 *Basidiobolus* sp. 9890
dahBR2 *Basidiobolus* sp. 9891
dahBR4 *Basidiobolus* sp. 9892
dahBR5 *Basidiobolus* sp. 9893
dahCH1 *Basidiobolus* sp. 9894

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dahCH4 *Basidiobolus* sp. 9896
dahOWT1 *Basidiobolus* sp. 9897
dahOWT2 *Basidiobolus* sp. 9898
dahOWT3 *Basidiobolus* sp. 9899
dahSAR2A *Basidiobolus* sp. 9900
dahSAR3A *Basidiobolus* sp. 9901
dahSAR4A *Basidiobolus* sp. 9902
dahT14 *Basidiobolus* sp. 9903
dahT53 *Basidiobolus* sp. 9904
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dahU22 *Basidiobolus* sp. 9910
dahU71 *Basidiobolus* sp. 9911
dahU84 *Basidiobolus* sp. 9912

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3 *Batkoaa* sp. 6179

Holdom, David G.
020286 *Pandora delphacis* 2095
060286 *Pandora delphacis* 2096
130287-2 *Zoophthora radicans* 2411
2 *Conidiobolus coronatus* 1876
200186-2 *Pandora delphacis* 2091
260186-1 *Pandora delphacis* 2092
260186-2 *Pandora delphacis* 2093
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300187 *Zoophthora radicans* 2410
310187-1 *Pandora delphacis* 2409
UQE-15 *Entomophthora chromaphidis* 1862
UQE-2-2 *Entomophthora chromaphidis* 1860
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Huang, Bo
3-litter-1 A *Conidiobolus adiaeetus* 8320
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GSM3-L-1C2 *Conidiobolus* sp. 8314
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L051115B8 *Conidiobolus iuxtagenitus* 7944
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FR-10 *Pandora neoaphidis* 2851
FR-12 *Pandora neoaphidis* 2763
FR-14 *Pandora neoaphidis* 2755
FR-16 *Pandora neoaphidis* 2840
FR-17 *Zoophthora occidentalis* 2841
FR-18 *Pandora neoaphidis* 2842
FR-19 *Pandora neoaphidis* 2844
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FR-21 *Pandora neoaphidis* 2846
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FR-8 *Pandora neoaphidis* 2870
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**Hywel-Jones, Nigel
Maddox, Joseph V.**

Hywel-Jones, Nigel

H84178-2 *Erynia conica* 1439

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2377 *Zoophthora radicans* 4785
2553 *Zoophthora radicans* 4782
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480 *Conidiobolus pseudapiculatus* 1664
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493 *Conidiobolus coronatus* 1574
494 *Conidiobolus coronatus* 1575
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515 *Pandora blunckii* 1716
516 *Pandora blunckii* 1717
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65 *Eryniopsis caroliniana* 642
69 *Eryniopsis caroliniana* 640
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3023 *Conidiobolus thromboides* 41
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3035 *Conidiobolus thromboides* 15
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1A *Zoophthora radicans* 2977
1B *Zoophthora radicans* 2978
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Leonard, David E.

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1 *Zoophthora radicans* 6917

Maddox, Joseph V.

CHAMP87, BPLH-2 *Zoophthora radicans* 2551
EL87, PLH *Zoophthora radicans* 2550
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- 10 *Pandora neoaphidis* 3459
102 *Pandora neoaphidis* 636
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106 *Conidiobolus thromboides* 630
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108 *Conidiobolus thromboides* 635
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18 *Conidiobolus* sp. 3383
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236 *Pandora neoaphidis* 1610
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Martinell, Brian J.

- 001(FSA) *Entomophaga macleodii* 619
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- 011(JuddA) *Entomophaga macleodii* 624
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3 *Entomophaga macleodii* 768
41 *Entomophaga macleodii* 765
8 *Entomophaga macleodii* 776

McGuire, Michael R.

- 85-1(1pass) *Zoophtora radicans* 1938
A *Zoophtora radicans* 1018
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C *Zoophtora radicans* 1261
D *Zoophtora radicans* 1020
E *Zoophtora radicans* 1262
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Mitsuhashi, Jun

- Emb-1 *Entomophaga aulicae* 1751

Nadeau, Martin

- 222 *Erynia curvispora* 3229
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Nelson, Rex

- USF 50 *Basidiobolus ranarum* 5889
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USF 85Z1Z3 *Basidiobolus ranarum* 5935
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Nielsen, Charlotte

- KVL 1996-1 *Pandora neoaphidis* 5371
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KVL 98-17 *Batkoia apiculata* 5994
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1232 *Basidiobolus haptosporus* 261
 2780 *Conidiobolus thromboides* 15
 2780 *Conidiobolus thromboides* 115
 2780 *Conidiobolus thromboides* 208
 28638 *Conidiobolus coronatus* 8715
 3682 *Conidiobolus bangalorensis* 449
 3733 *Basidiobolus meristosporus* 8329
 3734 *Basidiobolus magnus* 8330

Ostrovská, Katherine

21 *Conidiobolus coronatus* 3414
 22 *Conidiobolus coronatus* 3415
 4 *Conidiobolus coronatus* 3379

Padhye, A. A.

CDC 76-075022 *Schizangiella serpentis*
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Parker, Bruce L.

GA-113 *Conidiobolus* sp. 5404
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Pell, J. K.

NW 231 *Pandora neoaphidis* 4934

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Lyc 1 *Conidiobolus coronatus* 9940
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Poprawski, Tadeusz J.

0184 *Pandora neoaphidis* 1981
 0188 *Pandora neoaphidis* 1985
 0189 *Pandora neoaphidis* 1986
 0190 *Pandora neoaphidis* 1987
 0191 *Pandora neoaphidis* 2085
 0193 *Pandora neoaphidis* 2086
 0195 *Entomophthora muscae* 2087
 0196 *Entomophthora muscae* 2088
 0197 *Entomophthora muscae* 2089
 8617 *Entomophthora muscae* 2263
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 8624 *Entomophthora muscae* 2266
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 8633 *Zoophthora radicans* 2257
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 8640 *Entomophthora muscae* 2317
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 88102 *Zoophthora radicans* 2697
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 88129 *Zoophthora radicans* 2714
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15	Conidiobolus thromboides	144	Zoophthora radicans	262	Basidiobolus haptosporus
21	Zoophthora radicans	145	Zoophthora radicans	263	Basidiobolus haptosporus
22	Conidiobolus thromboides	146	Zoophthora radicans	264	Basidiobolus haptosporus
29	Conidiobolus thromboides	147	Conidiobolus sp.	265	Basidiobolus microsporus
39	Conidiobolus thromboides	148	Conidiobolus sp.	267	Basidiobolus microsporus
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41	Conidiobolus thromboides	162	Zoophthora radicans	269	Basidiobolus microsporus
42	Conidiobolus thromboides	163	Zoophthora radicans	270	Basidiobolus sp.
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45	Zoophthora radicans	165	Entomophaga aulicae	272	Basidiobolus haptosporus
50	Zoophthora radicans	166	Entomophaga aulicae	273	Basidiobolus sp.
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63	Conidiobolus thromboides	182	Conidiobolus obscurus	354	Conidiobolus obscurus
64	Conidiobolus thromboides	183	Zoophthora radicans	355	Conidiobolus obscurus
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68	Zoophthora radicans	185	Zoophthora radicans	362	Pandora nouri
70	Conidiobolus thromboides	186	Zoophthora radicans	363	Conidiobolus thromboides
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73	Conidiobolus thromboides	188	Zoophthora radicans	366	Pandora nouri
74	Conidiobolus obscurus	189	Zoophthora radicans	369	Pandora kondoiensis
75	Zoophthora radicans	191	Zoophthora phytonomi	370	Zoophthora radicans
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83	Conidiobolus thromboides	199	Pandora nouri	381	Pandora neoaphidis
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85	Conidiobolus thromboides	203	Schizangiella serpentis	383	Entomophaga calopteni
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97	Conidiobolus obscurus	215	Batko a gigantea	393	Entomophaga sp.
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101	Conidiobolus thromboides	221	Zoophthora radicans	396	Zoophthora anglica
102	Conidiobolus thromboides	223	Zoophthora radicans	397	Pandora dipterigena
103	Zoophthora radicans	224	Zoophthora radicans	399	Erynia ovispora
104	Zoophthora radicans	225	Zoophthora radicans	400	Erynia ovispora
105	Zoophthora radicans	226	Zoophthora radicans	403	Batko a gigantea
106	Zoophthora radicans	227	Zoophthora radicans	404	Zoophthora radicans
107	Zoophthora radicans	228	Zoophthora radicans	405	Conidiobolus coronatus
108	Zoophthora radicans	229	Zoophthora radicans	406	Conidiobolus coronatus
109	Zoophthora radicans	230	Zoophthora radicans	407	Zoophthora radicans
110	Zoophthora radicans	231	Zoophthora radicans	408	Entomophaga calopteni
111	Zoophthora radicans	232	Zoophthora radicans	418	Conidiobolus coronatus
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114	Zoophthora radicans	235	Zoophthora radicans	422	Conidiobolus coronatus
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120	Conidiobolus thromboides	238	Zoophthora radicans	426	Zoophthora lanceolata
121	Conidiobolus obscurus	239	Zoophthora radicans	427	Furia virescens
122	Conidiobolus obscurus	242	Conidiobolus thromboides	434	Conidiobolus obscurus
124	Conidiobolus obscurus	243	Conidiobolus obscurus	447	Conidiobolus osmodes
126	Zoophthora radicans	244	Conidiobolus thromboides	448	Conidiobolus rhyssosporus
128	Pandora neoaphidis	245	Conidiobolus thromboides	449	Conidiobolus bangalorensis
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459	<i>Pandora delphacis</i>	637	<i>Pandora neoaphidis</i>	835	<i>Pandora neoaphidis</i>
460	<i>Pandora delphacis</i>	638	<i>Pandora neoaphidis</i>	836	<i>Pandora kondoiensis</i>
461	<i>Pandora delphacis</i>	639	<i>Pandora neoaphidis</i>	837	<i>Pandora kondoiensis</i>
468	<i>Zoophthora lanceolata</i>	640	<i>Eryniopsis caroliniana</i>	838	<i>Pandora neoaphidis</i>
469	<i>Zoophthora lanceolata</i>	641	<i>Eryniopsis caroliniana</i>	839	<i>Batkoia apiculata</i>
470	<i>Furia virescens</i>	642	<i>Eryniopsis caroliniana</i>	840	<i>Entomophaga praxibuli</i>
471	<i>Conidiobolus coronatus</i>	646	<i>Entomophaga calopteni</i>	899	<i>Zoophthora radicans</i>
478	<i>Pandora delphacis</i>	649	<i>Conidiobolus thrombooides</i>	914	<i>Zoophthora radicans</i>
491	<i>Zoophthora radicans</i>	650	<i>Macrobiotophtora vermicula</i>	915	<i>Pandora blunckii</i>
496	<i>Entomophaga macleodii</i>	651	<i>Entomophthora muscae</i>	916	<i>Zoophthora anglica</i>
497	<i>Entomophaga calopteni</i>	655	<i>Conidiobolus coronatus</i>	917	<i>Pandora blunckii</i>
498	<i>Entomophaga calopteni</i>	657	<i>Pandora delphacis</i>	919	<i>Batkoia apiculata</i>
499	<i>Entomophaga macleodii</i>	659	<i>Pandora delphacis</i>	920	<i>Pandora blunckii</i>
500	<i>Entomophaga calopteni</i>	660	<i>Pandora delphacis</i>	926	<i>Zoophthora anglica</i>
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512	<i>Conidiobolus coronatus</i>	664	<i>Pandora delphacis</i>	993	<i>Pandora neoaphidis</i>
514	<i>Conidiobolus coronatus</i>	665	<i>Pandora delphacis</i>	997	<i>Conidiobolus coronatus</i>
517	<i>Conidiobolus sp.</i>	666	<i>Pandora delphacis</i>	998	<i>Entomophaga aulicae</i>
520	<i>Conidiobolus coronatus</i>	667	<i>Pandora delphacis</i>	999	<i>Conidiobolus sp.</i>
522	<i>Conidiobolus sp.</i>	668	<i>Pandora delphacis</i>	1000	<i>Pandora blunckii</i>
523	<i>Conidiobolus coronatus</i>	669	<i>Pandora delphacis</i>	1004	<i>Pandora blunckii</i>
524	<i>Conidiobolus coronatus</i>	670	<i>Pandora delphacis</i>	1006	<i>Conidiobolus thrombooides</i>
525	<i>Conidiobolus coronatus</i>	672	<i>Pandora delphacis</i>	1018	<i>Zoophthora radicans</i>
528	<i>Conidiobolus coronatus</i>	673	<i>Pandora delphacis</i>	1019	<i>Zoophthora radicans</i>
556	<i>Entomophthora muscae</i>	674	<i>Pandora delphacis</i>	1020	<i>Zoophthora radicans</i>
557	<i>Entomophthora muscae</i>	676	<i>Pandora delphacis</i>	1021	<i>Zoophthora radicans</i>
563	<i>Conidiobolus coronatus</i>	682	<i>Pandora delphacis</i>	1048	<i>Zoophthora radicans</i>
564	<i>Conidiobolus sp.</i>	685	<i>Zoophthora radicans</i>	1050	<i>Zoophthora radicans</i>
565	<i>Conidiobolus coronatus</i>	686	<i>Pandora delphacis</i>	1082	<i>Zoophthora radicans</i>
567	<i>Conidiobolus coronatus</i>	698	<i>Pandora delphacis</i>	1100	<i>Zoophthora radicans</i>
575	<i>Pandora delphacis</i>	707	<i>Entomophthora muscae</i>	1101	<i>Pandora delphacis</i>
579	<i>Pandora delphacis</i>	713	<i>Pandora delphacis</i>	1124	<i>Pandora delphacis</i>
580	<i>Pandora delphacis</i>	716	<i>Pandora delphacis</i>	1125	<i>Zoophthora radicans</i>
581	<i>Entomophaga australiensis</i>	742	<i>Furia americana</i>	1126	<i>Entomophaga sp.</i>
593	<i>Pandora delphacis</i>	743	<i>Entomophaga australiensis</i>	1129	<i>Furia virescens</i>
595	<i>Conidiobolus sp.</i>	750	<i>Erynia aquatica</i>	1130	<i>Zoophthora radicans</i>
596	<i>Conidiobolus sp.</i>	764	<i>Erynia aquatica</i>	1131	<i>Conidiobolus obscurus</i>
597	<i>Conidiobolus coronatus</i>	765	<i>Entomophaga macleodii</i>	1132	<i>Pandora delphacis</i>
598	<i>Conidiobolus nr. coronatus</i>	767	<i>Entomophaga macleodii</i>	1133	<i>Pandora delphacis</i>
599	<i>Conidiobolus nr. coronatus</i>	768	<i>Entomophaga macleodii</i>	1134	<i>Pandora neoaphidis</i>
600	<i>Conidiobolus nr. coronatus</i>	769	<i>Entomophaga macleodii</i>	1136	<i>Zoophthora radicans</i>
602	<i>Conidiobolus nr. coronatus</i>	770	<i>Entomophaga macleodii</i>	1137	<i>Pandora neoaphidis</i>
603	<i>Pandora delphacis</i>	771	<i>Entomophaga macleodii</i>	1139	<i>Basidiobolus ranarum</i>
604	<i>Conidiobolus sp.</i>	772	<i>Entomophaga macleodii</i>	1140	<i>Entomophaga aulicae</i>
605	<i>Conidiobolus sp.</i>	773	<i>Entomophaga macleodii</i>	1145	<i>Furia neopyralidarum</i>
606	<i>Conidiobolus sp.</i>	774	<i>Entomophaga macleodii</i>	1146	<i>Batkoia apiculata</i>
608	<i>Pandora neoaphidis</i>	775	<i>Entomophaga macleodii</i>	1147	<i>Conidiobolus coronatus</i>
609	<i>Pandora neoaphidis</i>	776	<i>Entomophaga macleodii</i>	1227	<i>Zoophthora radicans</i>
610	<i>Pandora neoaphidis</i>	777	<i>Entomophaga macleodii</i>	1228	<i>Zoophthora radicans</i>
611	<i>Pandora neoaphidis</i>	778	<i>Entomophaga macleodii</i>	1229	<i>Zoophthora radicans</i>
612	<i>Pandora neoaphidis</i>	779	<i>Entomophaga macleodii</i>	1230	<i>Entomophaga sp.</i>
613	<i>Pandora neoaphidis</i>	781	<i>Furia pieris</i>	1231	<i>Zoophthora radicans</i>
614	<i>Pandora neoaphidis</i>	789	<i>Zoophthora radicans</i>	1232	<i>Zoophthora radicans</i>
618	<i>Entomophaga macleodii</i>	790	<i>Zoophthora radicans</i>	1233	<i>Zoophthora radicans</i>
619	<i>Entomophaga macleodii</i>	791	<i>Entomophaga australiensis</i>	1234	<i>Zoophthora radicans</i>
620	<i>Entomophaga macleodii</i>	800	<i>Zoophthora radicans</i>	1236	<i>Zoophthora radicans</i>
621	<i>Entomophaga macleodii</i>	801	<i>Erynia rhizospora</i>	1237	<i>Zoophthora radicans</i>
623	<i>Entomophaga calopteni</i>	803	<i>Entomophthora muscae</i>	1238	<i>Pandora delphacis</i>
624	<i>Entomophaga macleodii</i>	822	<i>Zoophthora radicans</i>	1239	<i>Zoophthora radicans</i>
625	<i>Entomophaga calopteni</i>	823	<i>Zoophthora radicans</i>	1240	<i>Furia americana</i>
626	<i>Entomophaga calopteni</i>	824	<i>Conidiobolus obscurus</i>	1242	<i>Furia americana</i>
628	<i>Entomophaga macleodii</i>	825	<i>Pandora kondoiensis</i>	1261	<i>Zoophthora radicans</i>
629	<i>Entomophaga macleodii</i>	826	<i>Entomophthora muscae</i>	1262	<i>Zoophthora radicans</i>
630	<i>Conidiobolus thrombooides</i>	827	<i>Pandora neoaphidis</i>	1263	<i>Zoophthora radicans</i>
631	<i>Conidiobolus thrombooides</i>	828	<i>Pandora kondoiensis</i>	1264	<i>Pandora delphacis</i>
632	<i>Conidiobolus thrombooides</i>	829	<i>Pandora neoaphidis</i>	1265	<i>Pandora delphacis</i>
633	<i>Conidiobolus thrombooides</i>	830	<i>Pandora neoaphidis</i>	1268	<i>Pandora delphacis</i>
634	<i>Conidiobolus thrombooides</i>	832	<i>Conidiobolus obscurus</i>	1336	<i>Zoophthora radicans</i>
635	<i>Conidiobolus thrombooides</i>	833	<i>Pandora neoaphidis</i>	1337	<i>Zoophthora radicans</i>

1339	Furia ithacensis	1600	Pandora neoaphidis	1884	Conidiobolus coronatus
1340	Furia ithacensis	1601	Pandora neoaphidis	1887	Pandora dipterigena
1341	Zoophthora radicans	1602	Pandora neoaphidis	1888	Entomophaga australiensis
1342	Zoophthora radicans	1603	Pandora neoaphidis	1920	Entomophaga australiensis
1343	Zoophthora radicans	1604	Pandora neoaphidis	1921	Pandora dipterigena
1344	Zoophthora radicans	1605	Pandora neoaphidis	1923	Pandora dipterigena
1345	Zoophthora radicans	1606	Pandora neoaphidis	1928	Zoophthora radicans
1346	Zoophthora radicans	1607	Pandora neoaphidis	1929	Zoophthora radicans
1347	Basidiobolus haptosporus	1609	Pandora neoaphidis	1930	Zoophthora radicans
1350	Zoophthora radicans	1610	Pandora neoaphidis	1931	Zoophthora radicans
1390	Entomophaga maimaiga	1611	Pandora neoaphidis	1932	Zoophthora radicans
1391	Entomophaga maimaiga	1612	Pandora neoaphidis	1933	Zoophthora radicans
1392	Entomophaga maimaiga	1613	Pandora neoaphidis	1934	Zoophthora radicans
1393	Entomophaga asiatica	1615	Pandora neoaphidis	1935	Zoophthora radicans
1400	Entomophaga maimaiga	1616	Pandora neoaphidis	1936	Pandora delphacis
1422	Pandora dipterigena	1617	Pandora neoaphidis	1937	Zoophthora radicans
1426	Conidiobolus sp.	1618	Pandora neoaphidis	1938	Zoophthora radicans
1427	Batkoia major	1655	Entomophaga aulicae	1967	Conidiobolus sp.
1428	Zoophthora radicans	1656	Entomophaga aulicae	1981	Pandora neoaphidis
1439	Erynia conica	1657	Entomophaga aulicae	1985	Pandora neoaphidis
1440	Erynia rhizospora	1658	Entomophaga maimaiga	1986	Pandora neoaphidis
1441	Erynia rhizospora	1659	Entomophaga asiatica	1987	Pandora neoaphidis
1442	Erynia rhizospora	1660	Batkoia apiculata	1990	Entomophaga aulicae
1443	Erynia rhizospora	1661	Batkoia apiculata	1991	Entomophaga aulicae
1444	Conidiobolus sp.	1662	Conidiobolus pseudapiculatus	1992	Entomophaga aulicae
1445	Conidiobolus sp.	1664	Conidiobolus pseudapiculatus	1993	Entomophaga aulicae
1477	Conidiobolus sp.	1665	Conidiobolus pseudapiculatus	1994	Entomophaga aulicae
1485	Conidiobolus sp.	1672	Conidiobolus sp.	1995	Entomophaga aulicae
1486	Conidiobolus sp.	1674	Zoophthora radicans	1997	Entomophaga aulicae
1487	Conidiobolus sp.	1675	Zoophthora radicans	1998	Entomophaga aulicae
1488	Conidiobolus sp.	1695	Pandora neoaphidis	1999	Entomophaga aulicae
1492	Zoophthora radicans	1696	Pandora neoaphidis	2000	Entomophaga aulicae
1493	Zoophthora radicans	1699	Zoophthora radicans	2014	Entomophthora muscae
1494	Zoophthora radicans	1715	Pandora blunckii	2016	Pandora neoaphidis
1495	Zoophthora radicans	1716	Pandora blunckii	2017	Pandora neoaphidis
1496	Zoophthora radicans	1717	Pandora blunckii	2018	Pandora neoaphidis
1497	Zoophthora radicans	1718	Pandora blunckii	2019	Pandora neoaphidis
1498	Zoophthora radicans	1719	Zoophthora radicans	2020	Pandora neoaphidis
1499	Zoophthora radicans	1720	Pandora dipterigena	2028	Pandora delphacis
1500	Zoophthora radicans	1730	Pandora delphacis	2046	Pandora delphacis
1501	Zoophthora radicans	1731	Pandora delphacis	2047	Pandora delphacis
1502	Zoophthora radicans	1733	Conidiobolus thromboides	2048	Basidiobolus sp.
1503	Zoophthora radicans	1734	Conidiobolus thromboides	2049	Basidiobolus sp.
1504	Zoophthora radicans	1735	Conidiobolus thromboides	2050	Basidiobolus sp.
1541	Zoophthora radicans	1736	Conidiobolus coronatus	2051	Basidiobolus sp.
1542	Zoophthora radicans	1737	Conidiobolus coronatus	2052	Basidiobolus sp.
1543	Zoophthora radicans	1738	Conidiobolus coronatus	2085	Pandora neoaphidis
1544	Zoophthora radicans	1739	Zoophthora anglica	2086	Pandora neoaphidis
1570	Pandora neoaphidis	1741	Conidiobolus obscurus	2087	Entomophthora muscae
1572	Conidiobolus coronatus	1742	Conidiobolus nr. coronatus	2088	Entomophthora muscae
1573	Conidiobolus coronatus	1743	Conidiobolus nr. coronatus	2089	Entomophthora muscae
1574	Conidiobolus coronatus	1746	Entomophaga maimaiga	2091	Pandora delphacis
1575	Conidiobolus coronatus	1751	Entomophaga aulicae	2092	Pandora delphacis
1581	Zoophthora radicans	1752	Erynia conica	2093	Pandora delphacis
1582	Zoophthora radicans	1753	Erynia conica	2094	Pandora delphacis
1583	Zoophthora radicans	1754	Erynia curvispora	2095	Pandora delphacis
1584	Zoophthora radicans	1784	Pandora neoaphidis	2096	Pandora delphacis
1585	Zoophthora radicans	1785	Pandora neoaphidis	2108	Pandora neoaphidis
1586	Zoophthora radicans	1786	Pandora neoaphidis	2109	Pandora neoaphidis
1587	Zoophthora radicans	1824	Pandora neoaphidis	2110	Pandora neoaphidis
1588	Zoophthora radicans	1825	Pandora neoaphidis	2112	Pandora neoaphidis
1589	Zoophthora radicans	1826	Pandora neoaphidis	2114	Pandora neoaphidis
1590	Zoophthora radicans	1827	Pandora neoaphidis	2115	Pandora neoaphidis
1591	Zoophthora radicans	1841	Zoophthora radicans	2116	Pandora neoaphidis
1593	Zoophthora radicans	1860	Entomophthora chromaphidis	2117	Pandora neoaphidis
1594	Zoophthora radicans	1862	Entomophthora chromaphidis	2118	Pandora neoaphidis
1595	Zoophthora radicans	1863	Entomophthora chromaphidis	2119	Pandora neoaphidis
1596	Pandora neoaphidis	1870	Erynia sciarae	2120	Pandora neoaphidis
1597	Pandora neoaphidis	1876	Conidiobolus coronatus	2121	Pandora neoaphidis
1598	Pandora neoaphidis	1881	Entomophaga sp.	2122	Pandora neoaphidis

2123	Pandora neoaphidis	2496	Conidiobolus pseudapiculatus	2718	Zoophthora radicans
2124	Pandora neoaphidis	2497	Conidiobolus pseudapiculatus	2719	Zoophthora radicans
2128	Pandora neoaphidis	2498	Conidiobolus sp.	2720	Zoophthora radicans
2130	Conidiobolus sp.	2499	Zoophthora radicans	2721	Entomophaga praxibuli
2147	Conidiobolus sp.	2500	Zoophthora radicans	2730	Conidiobolus coronatus
2148	Conidiobolus sp.	2501	Zoophthora radicans	2731	Conidiobolus firmipilleus
2172	Entomophthora muscae	2502	Conidiobolus pseudapiculatus	2732	Zoophthora radicans
2188	Zoophthora phytonomi	2503	Zoophthora radicans	2754	Pandora neoaphidis
2192	Furia americana	2504	Batkoia apiculata	2755	Pandora neoaphidis
2193	Conidiobolus sp.	2505	Zoophthora anglica	2756	Pandora neoaphidis
2194	Furia americana	2506	Zoophthora radicans	2757	Pandora neoaphidis
2196	Zoophthora radicans	2522	Entomophaga caloteni	2758	Pandora neoaphidis
2237	Schizangiella sp.	2523	Zoophthora radicans	2760	Pandora neoaphidis
2239	Schizangiella sp.	2535	Eryniopsis ptychopterae	2761	Pandora neoaphidis
2241	Zoophthora radicans	2540	Entomophthora schizophorae	2762	Pandora neoaphidis
2242	Zoophthora radicans	2541	Entomophthora schizophorae	2763	Pandora neoaphidis
2243	Zoophthora radicans	2542	Entomophthora muscae	2766	Pandora neoaphidis
2244	Zoophthora radicans	2549	Zoophthora radicans	2767	Pandora neoaphidis
2245	Zoophthora radicans	2550	Zoophthora radicans	2768	Pandora neoaphidis
2246	Zoophthora radicans	2551	Zoophthora radicans	2769	Pandora neoaphidis
2256	Zoophthora radicans	2552	Zoophthora radicans	2771	Conidiobolus sp.
2257	Zoophthora radicans	2554	Zoophthora radicans	2772	Conidiobolus sp.
2258	Zoophthora radicans	2558	Zoophthora radicans	2773	Pandora neoaphidis
2259	Zoophthora radicans	2583	Pandora neoaphidis	2775	Entomophaga maimaiga
2260	Zoophthora radicans	2584	Pandora neoaphidis	2779	Entomophaga maimaiga
2261	Zoophthora radicans	2585	Pandora neoaphidis	2780	Entomophaga maimaiga
2262	Zoophthora radicans	2587	Pandora neoaphidis	2781	Pandora neoaphidis
2263	Entomophthora muscae	2588	Pandora neoaphidis	2782	Pandora neoaphidis
2264	Entomophthora muscae	2589	Pandora neoaphidis	2783	Pandora neoaphidis
2265	Entomophthora muscae	2591	Pandora neoaphidis	2784	Pandora neoaphidis
2266	Entomophthora muscae	2592	Pandora neoaphidis	2787	Basidiobolus ranarum
2273	Entomophaga conglomerata	2593	Pandora neoaphidis	2811	Zoophthora radicans
2274	Erynia conica	2594	Pandora neoaphidis	2812	Conidiobolus coronatus
2275	Erynia conica	2600	Zoophthora radicans	2813	Conidiobolus coronatus
2276	Erynia rhizospora	2601	Zoophthora radicans	2814	Conidiobolus coronatus
2280	Pandora neoaphidis	2661	Entomophaga maimaiga	2815	Conidiobolus sp.
2281	Zoophthora phalloides	2665	Entomophthora muscae	2816	Conidiobolus sp.
2282	Zoophthora radicans	2666	Zoophthora radicans	2819	Conidiobolus sp.
2283	Zoophthora radicans	2667	Entomophthora schizophorae	2824	Pandora blunckii
2284	Zoophthora radicans	2668	Entomophthora muscae	2828	Conidiobolus thrombooides
2285	Zoophthora radicans	2670	Entomophthora muscae	2829	Conidiobolus thrombooides
2286	Zoophthora radicans	2671	Eryniopsis ptychopterae	2837	Pandora neoaphidis
2287	Zoophthora radicans	2672	Conidiobolus sp.	2838	Pandora neoaphidis
2288	Zoophthora radicans	2673	Entomophthora muscae	2839	Pandora neoaphidis
2289	Zoophthora radicans	2674	Entomophthora muscae	2840	Pandora neoaphidis
2293	Pandora neoaphidis	2675	Entomophthora muscae	2841	Zoophthora occidentalis
2298	Pandora neoaphidis	2677	Neozygites tetranychii	2842	Pandora neoaphidis
2317	Entomophthora muscae	2678	Entomophthora muscae	2843	Entomophaga aulicae
2338	Conidiobolus lamprauges	2696	Zoophthora radicans	2844	Pandora neoaphidis
2362	Entomophaga aulicae	2697	Zoophthora radicans	2845	Pandora neoaphidis
2363	Entomophaga aulicae	2698	Zoophthora radicans	2846	Pandora neoaphidis
2365	Entomophaga aulicae	2699	Zoophthora radicans	2847	Pandora neoaphidis
2366	Entomophaga aulicae	2700	Zoophthora radicans	2848	Pandora neoaphidis
2367	Entomophaga aulicae	2701	Zoophthora radicans	2849	Conidiobolus thrombooides
2368	Entomophaga aulicae	2702	Zoophthora radicans	2850	Conidiobolus thrombooides
2369	Entomophaga aulicae	2703	Zoophthora radicans	2851	Pandora neoaphidis
2370	Entomophaga maimaiga	2704	Zoophthora radicans	2852	Pandora neoaphidis
2371	Entomophaga maimaiga	2705	Zoophthora radicans	2853	Pandora neoaphidis
2372	Entomophaga aulicae	2706	Zoophthora radicans	2854	Pandora neoaphidis
2373	Entomophaga aulicae	2707	Zoophthora radicans	2855	Pandora neoaphidis
2374	Entomophaga aulicae	2708	Zoophthora radicans	2856	Pandora neoaphidis
2400	Zoophthora radicans	2709	Zoophthora radicans	2865	Pandora neoaphidis
2405	Erynia conica	2710	Zoophthora radicans	2866	Pandora neoaphidis
2406	Pandora dipterigena	2711	Zoophthora radicans	2867	Pandora neoaphidis
2407	Erynia rhizospora	2712	Zoophthora radicans	2868	Pandora neoaphidis
2409	Pandora delphacis	2713	Zoophthora radicans	2870	Pandora neoaphidis
2410	Zoophthora radicans	2714	Zoophthora radicans	2872	Pandora neoaphidis
2411	Zoophthora radicans	2715	Conidiobolus coronatus	2873	Pandora neoaphidis
2493	Conidiobolus pseudapiculatus	2716	Zoophthora radicans	2874	Pandora neoaphidis
2494	Conidiobolus sp.	2717	Zoophthora radicans	2875	Pandora neoaphidis

2876	Pandora neoaphidis	3074	Entomophthora muscae	3214	Zoophthora radicans
2893	Zoophthora radicans	3075	Pandora blunckii	3217	Zoophthora radicans
2896	Entomophaga aulicae	3077	Entomophaga macleodii	3222	Conidiobolus coronatus
2897	Entomophaga aulicae	3078	Entomophaga macleodii	3225	Batkoia apiculata
2898	Entomophaga aulicae	3079	Entomophaga macleodii	3226	Batkoia apiculata
2899	Entomophaga aulicae	3080	Batkoia apiculata	3229	Erynia curvispora
2900	Entomophaga aulicae	3081	Pandora neoaphidis	3234	Pandora neoaphidis
2901	Entomophaga aulicae	3082	Pandora neoaphidis	3237	Pandora neoaphidis
2902	Entomophaga aulicae	3087	Conidiobolus coronatus	3238	Pandora neoaphidis
2903	Entomophaga aulicae	3088	Batkoia apiculata	3240	Pandora neoaphidis
2904	Entomophaga aulicae	3089	Conidiobolus obscurus	3241	Pandora neoaphidis
2905	Entomophaga aulicae	3090	Conidiobolus obscurus	3244	Erynia curvispora
2906	Furia gastropachae	3091	Batkoia apiculata	3248	Pandora neoaphidis
2914	Conidiobolus thromboides	3092	Conidiobolus obscurus	3249	Pandora neoaphidis
2924	Conidiobolus sp.	3093	Pandora delphacis	3250	Pandora neoaphidis
2925	Conidiobolus sp.	3094	Pandora delphacis	3251	Pandora neoaphidis
2926	Conidiobolus sp.	3095	Pandora delphacis	3282	Strongwellsea castrans
2927	Conidiobolus sp.	3096	Pandora delphacis	3283	Zoophthora radicans
2928	Conidiobolus sp.	3099	Conidiobolus coronatus	3284	Zoophthora radicans
2936	Batkoia major	3102	Batkoia major	3342	Zoophthora phytonomi
2955	Conidiobolus thromboides	3103	Batkoia major	3343	Zoophthora phytonomi
2963	Entomophaga praxibuli	3104	Zoophthora radicans	3344	Zoophthora phytonomi
2964	Entomophaga praxibuli	3105	Zoophthora radicans	3355	Zoophthora radicans
2965	Entomophaga praxibuli	3106	Pandora delphacis	3356	Entomophaga praxibuli
2966	Entomophaga praxibuli	3107	Pandora delphacis	3357	Entomophaga praxibuli
2967	Entomophaga praxibuli	3109	Conidiobolus coronatus	3358	Entomophaga praxibuli
2968	Entomophaga praxibuli	3110	Entomophaga maimaiga	3359	Conidiobolus thromboides
2969	Entomophaga praxibuli	3114	Zoophthora radicans	3360	Conidiobolus thromboides
2970	Entomophaga praxibuli	3115	Zoophthora radicans	3361	Conidiobolus thromboides
2977	Zoophthora radicans	3116	Zoophthora radicans	3362	Conidiobolus thromboides
2978	Zoophthora radicans	3117	Zoophthora radicans	3363	Conidiobolus thromboides
2979	Zoophthora radicans	3118	Zoophthora radicans	3364	Conidiobolus thromboides
2980	Zoophthora radicans	3119	Zoophthora radicans	3365	Pandora neoaphidis
2994	Zoophthora radicans	3126	Pandora neoaphidis	3366	Pandora neoaphidis
2995	Zoophthora radicans	3129	Conidiobolus thromboides	3367	Pandora neoaphidis
2996	Zoophthora radicans	3131	Batkoia sp.	3376	Zoophthora radicans
3002	Zoophthora radicans	3132	Conidiobolus obscurus	3377	Zoophthora radicans
3003	Zoophthora radicans	3133	Conidiobolus obscurus	3379	Conidiobolus coronatus
3004	Zoophthora radicans	3134	Conidiobolus obscurus	3383	Conidiobolus sp.
3005	Zoophthora radicans	3135	Conidiobolus obscurus	3384	Conidiobolus sp.
3006	Zoophthora radicans	3136	Batkoia apiculata	3390	Zoophthora radicans
3007	Zoophthora radicans	3137	Conidiobolus obscurus	3402	Conidiobolus sp.
3008	Zoophthora radicans	3138	Conidiobolus obscurus	3406	Conidiobolus sp.
3009	Zoophthora radicans	3139	Conidiobolus obscurus	3407	Conidiobolus sp.
3010	Zoophthora radicans	3140	Batkoia apiculata	3409	Conidiobolus sp.
3011	Zoophthora radicans	3141	Conidiobolus obscurus	3410	Pandora neoaphidis
3012	Zoophthora radicans	3149	Zoophthora radicans	3411	Pandora neoaphidis
3013	Zoophthora radicans	3150	Zoophthora radicans	3412	Pandora neoaphidis
3016	Entomophaga aulicae	3151	Zoophthora radicans	3414	Conidiobolus coronatus
3021	Zoophthora radicans	3159	Zoophthora radicans	3415	Conidiobolus coronatus
3022	Zoophthora radicans	3160	Zoophthora radicans	3459	Pandora neoaphidis
3023	Zoophthora radicans	3161	Zoophthora radicans	3484	Pandora delphacis
3024	Zoophthora radicans	3162	Zoophthora radicans	3485	Strongwellsea castrans
3026	Zoophthora radicans	3163	Zoophthora radicans	3486	Zoophthora sp.
3027	Zoophthora occidentalis	3164	Zoophthora radicans	3487	Zoophthora sp.
3028	Zoophthora occidentalis	3165	Zoophthora radicans	3488	Zoophthora sp.
3029	Zoophthora occidentalis	3170	Zoophthora radicans	3602	Entomophaga aulicae
3039	Entomophaga aulicae	3171	Zoophthora radicans	3623	Zoophthora radicans
3052	Entomophaga maimaiga	3172	Zoophthora radicans	3697	Zoophthora radicans
3053	Entomophaga maimaiga	3174	Pandora neoaphidis	3737	Zoophthora radicans
3058	Entomophaga praxibuli	3175	Pandora neoaphidis	3762	Entomophaga maimaiga
3059	Entomophaga praxibuli	3200	Pandora blunckii	3763	Conidiobolus sp.
3060	Entomophaga praxibuli	3201	Pandora sp.	3764	Basidiobolus sp.
3061	Entomophaga praxibuli	3202	Pandora blunckii	3828	Entomophaga maimaiga
3062	Pandora delphacis	3204	Zoophthora radicans	3829	Entomophaga maimaiga
3068	Entomophaga praxibuli	3205	Zoophthora radicans	3830	Entomophaga maimaiga
3069	Entomophaga praxibuli	3206	Zoophthora radicans	3831	Entomophaga maimaiga
3071	Zoophthora occidentalis	3208	Conidiobolus sp.	3832	Entomophaga maimaiga
3072	Pandora delphacis	3212	Entomophaga aulicae	3833	Entomophaga maimaiga
3073	Zoophthora occidentalis	3213	Zoophthora radicans	3834	Entomophaga maimaiga

3835	Entomophaga maimaiga	5398	Entomophaga maimaiga	5918	Basidiobolus ranarum
3880	Entomophaga maimaiga	5399	Entomophaga maimaiga	5919	Basidiobolus ranarum
3887	Entomophaga maimaiga	5400	Entomophaga maimaiga	5920	Basidiobolus ranarum
3913	Entomophaga maimaiga	5401	Entomophaga maimaiga	5921	Basidiobolus ranarum
4004	Entomophaga aulicae	5403	Pandora neoaphidis	5922	Basidiobolus ranarum
4005	Entomophaga aulicae	5404	Conidiobolus sp.	5923	Basidiobolus ranarum
4006	Entomophaga aulicae	5405	Conidiobolus sp.	5924	Basidiobolus ranarum
4007	Entomophaga aulicae	5406	Conidiobolus sp.	5925	Basidiobolus ranarum
4008	Entomophaga aulicae	5541	Furia gastropachae	5926	Basidiobolus ranarum
4504	Entomophaga maimaiga	5542	Furia gastropachae	5927	Basidiobolus ranarum
4505	Entomophaga maimaiga	5543	Furia gastropachae	5928	Basidiobolus ranarum
4506	Entomophaga maimaiga	5544	Furia gastropachae	5929	Basidiobolus ranarum
4507	Entomophaga maimaiga	5545	Furia gastropachae	5930	Basidiobolus ranarum
4508	Entomophaga maimaiga	5546	Furia gastropachae	5931	Basidiobolus ranarum
4509	Entomophaga maimaiga	5547	Furia gastropachae	5932	Basidiobolus ranarum
4510	Entomophaga maimaiga	5552	Batkoia apiculata	5933	Basidiobolus ranarum
4520	Zoophthora radicans	5563	Entomophaga maimaiga	5934	Basidiobolus ranarum
4545	Entomophaga maimaiga	5564	Entomophaga maimaiga	5935	Basidiobolus ranarum
4549	Entomophaga maimaiga	5565	Entomophaga maimaiga	5936	Basidiobolus ranarum
4550	Entomophaga maimaiga	5566	Entomophaga maimaiga	5937	Basidiobolus ranarum
4551	Entomophaga maimaiga	5567	Entomophaga maimaiga	5938	Basidiobolus ranarum
4552	Entomophaga maimaiga	5568	Entomophaga maimaiga	5939	Basidiobolus ranarum
4553	Entomophaga maimaiga	5569	Entomophaga maimaiga	5940	Basidiobolus ranarum
4554	Entomophaga maimaiga	5570	Entomophaga maimaiga	5941	Basidiobolus ranarum
4555	Entomophaga maimaiga	5571	Entomophaga maimaiga	5942	Basidiobolus ranarum
4781	Zoophthora radicans	5572	Entomophaga maimaiga	5943	Basidiobolus ranarum
4782	Zoophthora radicans	5620	Neozygites parvispora	5944	Basidiobolus ranarum
4783	Zoophthora radicans	5621	Neozygites parvispora	5945	Basidiobolus ranarum
4784	Zoophthora radicans	5707	Pandora neoaphidis	5946	Basidiobolus ranarum
4785	Zoophthora radicans	5708	Pandora neoaphidis	5947	Basidiobolus ranarum
4797	Conidiobolus coronatus	5711	Entomophaga maimaiga	5948	Basidiobolus ranarum
4934	Pandora neoaphidis	5712	Conidiobolus sp.	5949	Basidiobolus ranarum
4948	Entomophaga macleodii	5810	Batkoia sp.	5950	Basidiobolus ranarum
4949	Entomophaga macleodii	5811	Entomophthora culicis	5951	Basidiobolus ranarum
4950	Entomophaga macleodii	5812	Pandora sp.	5952	Entomophthora muscae
4951	Entomophaga macleodii	5814	Zoophthora radicans	5953	Entomophthora muscae
4952	Entomophaga macleodii	5868	Entomophthora thripidum	5954	Entomophthora muscae
4953	Entomophaga macleodii	5869	Furia gastropachae	5955	Entomophthora syrphi
4968	Conidiobolus thrombooides	5870	Furia gastropachae	5992	Conidiobolus obscurus
5162	Conidiobolus coronatus	5871	Furia gastropachae	5993	Conidiobolus osmodes(?)
5201	Neozygites floridana(?)	5872	Furia gastropachae	5994	Batkoia apiculata
5202	Neozygites floridana(?)	5889	Basidiobolus ranarum	5995	Pandora neoaphidis
5336	Basidiobolus sp.	5890	Basidiobolus ranarum	6000	Conidiobolus thrombooides
5348	Entomophthora schizophorae	5891	Basidiobolus ranarum	6001	Conidiobolus thrombooides
5371	Pandora neoaphidis	5892	Basidiobolus ranarum	6003	Zoophthora radicans
5372	Pandora neoaphidis	5893	Basidiobolus ranarum	6004	Entomophaga maimaiga
5373	Pandora neoaphidis	5894	Basidiobolus ranarum	6005	Entomophaga maimaiga
5374	Pandora neoaphidis	5895	Basidiobolus ranarum	6006	Entomophaga maimaiga
5376	Neozygites floridana(?)	5896	Basidiobolus ranarum	6007	Entomophaga maimaiga
5377	Entomophaga maimaiga	5897	Basidiobolus ranarum	6051	Entomophaga maimaiga
5378	Entomophaga maimaiga	5898	Basidiobolus ranarum	6052	Entomophaga maimaiga
5379	Entomophaga maimaiga	5899	Basidiobolus ranarum	6053	Entomophaga maimaiga
5380	Entomophaga maimaiga	5900	Basidiobolus ranarum	6054	Entomophaga maimaiga
5381	Entomophaga maimaiga	5901	Basidiobolus ranarum	6105	Entomophaga maimaiga
5382	Entomophaga maimaiga	5902	Basidiobolus ranarum	6106	Entomophaga maimaiga
5383	Entomophaga maimaiga	5903	Basidiobolus ranarum	6121	Entomophthora muscae
5384	Entomophaga maimaiga	5904	Basidiobolus ranarum	6122	Entomophthora muscae
5385	Entomophaga maimaiga	5905	Basidiobolus ranarum	6123	Entomophthora muscae
5386	Entomophaga maimaiga	5906	Basidiobolus ranarum	6124	Entomophthora muscae
5387	Entomophaga maimaiga	5907	Basidiobolus ranarum	6125	Entomophthora muscae
5388	Entomophaga maimaiga	5908	Basidiobolus ranarum	6126	Entomophthora muscae
5389	Entomophaga maimaiga	5909	Basidiobolus ranarum	6127	Entomophthora muscae
5390	Entomophaga maimaiga	5910	Basidiobolus ranarum	6128	Entomophthora muscae
5391	Entomophaga maimaiga	5911	Basidiobolus ranarum	6129	Entomophthora muscae
5392	Entomophaga maimaiga	5912	Basidiobolus ranarum	6130	Entomophthora muscae
5393	Entomophaga maimaiga	5913	Basidiobolus ranarum	6131	Entomophthora muscae
5394	Entomophaga maimaiga	5914	Basidiobolus ranarum	6132	Entomophthora muscae
5395	Entomophaga maimaiga	5915	Basidiobolus ranarum	6133	Entomophthora muscae
5396	Entomophaga maimaiga	5916	Basidiobolus ranarum	6134	Entomophthora muscae
5397	Entomophaga maimaiga	5917	Basidiobolus ranarum	6135	Entomophthora muscae

6136	Entomophthora muscae	6309	Pandora blunckii	6716	Entomophthora muscae
6137	Entomophthora schizophorae	6310	Pandora blunckii	6717	Entomophthora muscae
6138	Entomophthora schizophorae	6311	Pandora blunckii	6724	Entomophaga maimaiga
6139	Entomophthora schizophorae	6312	Pandora blunckii	6725	Entomophaga maimaiga
6140	Entomophthora muscae	6313	Zoophthora radicans	6726	Entomophaga maimaiga
6141	Entomophthora muscae	6314	Zoophthora radicans	6727	Entomophaga maimaiga
6142	Entomophthora schizophorae	6315	Zoophthora radicans	6728	Entomophaga maimaiga
6143	Entomophthora schizophorae	6316	Pandora blunckii	6729	Entomophaga maimaiga
6161	Entomophaga maimaiga	6361	Conidiobolus lamprauges	6811	Entomophthora muscae
6162	Entomophaga maimaiga	6377	Conidiobolus adiaeetus	6812	Entomophthora muscae
6163	Entomophaga maimaiga	6378	Conidiobolus iuxtagenitus	6813	Entomophthora muscae
6164	Entomophthora muscae	6379	Conidiobolus coronatus	6814	Entomophthora muscae
6165	Entomophthora muscae	6380	Basidiobolus ranarum	6815	Entomophthora muscae
6166	Pandora neoaphidis	6381	Conidiobolus thromboides	6816	Entomophthora schizophorae
6168	Entomophaga maimaiga	6382	Basidiobolus ranarum	6817	Entomophthora schizophorae
6169	Entomophaga maimaiga	6383	Conidiobolus pumilus	6818	Entomophthora muscae
6170	Entomophaga maimaiga	6384	Conidiobolus firmipilleus	6819	Entomophthora syrphi
6171	Entomophaga maimaiga	6385	Conidiobolus lamprauges	6820	Entomophthora syrphi
6172	Entomophaga maimaiga	6386	Conidiobolus heterosporus	6821	Entomophthora muscae
6173	Entomophaga maimaiga	6424	Conidiobolus sp.	6902	Pandora neoaphidis
6174	Entomophaga maimaiga	6505	Conidiobolus sp.	6913	Conidiobolus antarcticus
6179	Batko sp.	6512	Conidiobolus coronatus	6917	Zoophthora radicans
6210	Batko sp.	6517	Entomophthora thripidum	6918	Entomophthora muscae
6211	Furia sp.	6518	Entomophthora thripidum	7010	Conidiobolus coronatus
6212	Entomophaga maimaiga	6519	Entomophthora thripidum	7011	Conidiobolus coronatus
6218	Entomophaga maimaiga	6520	Entomophthora thripidum	7012	Conidiobolus coronatus
6219	Neozygites floridana(?)	6521	Entomophthora thripidum	7013	Conidiobolus coronatus
6220	Neozygites floridana(?)	6522	Entomophthora thripidum	7068	Batko papillata(?)
6221	Neozygites floridana(?)	6523	Entomophaga maimaiga	7101	Entomophaga maimaiga
6223	Entomophaga maimaiga	6524	Entomophaga maimaiga	7102	Entomophaga maimaiga
6224	Entomophaga maimaiga	6525	Entomophthora thripidum	7103	Entomophaga maimaiga
6251	Entomophthora planchoniana	6538	Pandora delphacis	7104	Entomophaga maimaiga
6252	Entomophthora planchoniana	6539	Pandora delphacis	7105	Entomophaga maimaiga
6253	Entomophaga maimaiga	6605	Zoophthora radicans	7106	Entomophaga maimaiga
6254	Entomophaga maimaiga	6625	Entomophaga maimaiga	7107	Entomophaga maimaiga
6255	Entomophaga maimaiga	6626	Entomophaga maimaiga	7108	Entomophaga maimaiga
6256	Entomophaga maimaiga	6627	Entomophaga maimaiga	7109	Entomophaga maimaiga
6257	Entomophaga maimaiga	6628	Entomophaga maimaiga	7110	Entomophaga maimaiga
6258	Entomophaga maimaiga	6629	Entomophaga maimaiga	7111	Entomophaga maimaiga
6264	Entomophaga maimaiga	6630	Entomophaga maimaiga	7112	Entomophaga maimaiga
6265	Entomophaga maimaiga	6631	Pandora neoaphidis	7113	Entomophaga maimaiga
6266	Entomophaga maimaiga	6652	Entomophaga maimaiga	7114	Entomophaga maimaiga
6267	Entomophaga maimaiga	6653	Entomophaga maimaiga	7115	Entomophaga maimaiga
6268	Entomophaga maimaiga	6654	Entomophaga maimaiga	7116	Entomophaga maimaiga
6269	Entomophaga maimaiga	6655	Entomophaga maimaiga	7120	Entomophaga maimaiga
6270	Entomophaga maimaiga	6656	Entomophaga maimaiga	7121	Entomophaga maimaiga
6271	Entomophaga maimaiga	6657	Entomophaga maimaiga	7122	Entomophaga maimaiga
6272	Entomophaga maimaiga	6659	Conidiobolus sp.	7123	Entomophaga maimaiga
6274	Entomophthora muscae	6662	Conidiobolus thromboides	7124	Entomophaga maimaiga
6276	Neozygites parvispora	6663	Entomophaga maimaiga	7125	Entomophaga maimaiga
6277	Neozygites parvispora	6664	Entomophaga maimaiga	7126	Entomophaga maimaiga
6278	Neozygites parvispora	6665	Entomophaga maimaiga	7127	Entomophaga maimaiga
6279	Neozygites parvispora	6666	Entomophaga maimaiga	7131	Entomophaga maimaiga
6280	Neozygites parvispora	6667	Entomophaga maimaiga	7132	Entomophaga maimaiga
6293	Pandora blunckii	6668	Entomophaga maimaiga	7133	Entomophaga maimaiga
6294	Pandora blunckii	6701	Entomophthora muscae	7134	Entomophaga maimaiga
6295	Pandora blunckii	6702	Entomophthora syrphi	7135	Entomophaga maimaiga
6296	Pandora blunckii	6703	Entomophthora schizophorae	7136	Entomophaga maimaiga
6297	Pandora blunckii	6704	Entomophthora scatophagae	7137	Entomophaga maimaiga
6298	Pandora blunckii	6705	Entomophthora scatophagae	7138	Entomophaga maimaiga
6299	Pandora blunckii	6706	Entomophthora muscae	7139	Entomophaga maimaiga
6300	Pandora blunckii	6707	Entomophthora muscae	7140	Entomophaga aulicae
6301	Pandora blunckii	6708	Entomophthora muscae	7141	Entomophaga aulicae
6302	Pandora blunckii	6709	Entomophthora muscae	7142	Entomophaga aulicae
6303	Zoophthora radicans	6710	Entomophthora muscae	7143	Entomophaga aulicae
6304	Pandora blunckii	6711	Entomophthora muscae	7144	Entomophaga aulicae
6305	Pandora blunckii	6712	Entomophthora muscae	7145	Entomophaga aulicae
6306	Pandora blunckii	6713	Entomophthora muscae	7183	Entomophaga maimaiga
6307	Pandora blunckii	6714	Entomophthora muscae	7184	Entomophaga maimaiga
6308	Pandora blunckii	6715	Entomophthora muscae	7185	Entomophaga maimaiga

7186	Entomophaga maimaiga	9891	Basidiobolus sp.
7187	Entomophaga maimaiga	9892	Basidiobolus sp.
7188	Entomophaga maimaiga	9893	Basidiobolus sp.
7189	Entomophaga maimaiga	9894	Basidiobolus sp.
7190	Entomophaga maimaiga	9895	Basidiobolus sp.
7203	Conidiobolus coronatus	9896	Basidiobolus sp.
7208	Zoophthora radicans	9897	Basidiobolus sp.
7209	Conidiobolus thromboides	9898	Basidiobolus sp.
7210	Conidiobolus thromboides	9899	Basidiobolus sp.
7211	Conidiobolus thromboides	9900	Basidiobolus sp.
7212	Pandora neoaphidis	9901	Basidiobolus sp.
7213	Pandora neoaphidis	9902	Basidiobolus sp.
7214	Pandora neoaphidis	9903	Basidiobolus sp.
7215	Conidiobolus thromboides	9904	Basidiobolus sp.
7216	Conidiobolus sp.	9905	Basidiobolus sp.
7217	Conidiobolus obscurus	9906	Basidiobolus sp.
7226	Pandora neoaphidis	9907	Basidiobolus sp.
7227	Unidentified Entomophthorales sp.	9908	Basidiobolus sp.
7228	Unidentified Entomophthorales sp.	9909	Basidiobolus sp.
7229	Unidentified Entomophthorales sp.	9910	Basidiobolus sp.
7230	Unidentified Entomophthorales sp.	9911	Basidiobolus sp.
7352	Entomophaga maimaiga	9912	Basidiobolus sp.
7353	Entomophaga maimaiga	9913	Conidiobolus coronatus
7370	Batkaoa sp.	9914	Conidiobolus coronatus
7371	Entomophthora muscae	9940	Conidiobolus coronatus
7454	Zoophthora sp.	9941	Conidiobolus coronatus
7455	Zoophthora radicans	9942	Conidiobolus coronatus
7786	Conidiobolus sp.		
7788	Zoophthora radicans		
7789	Zoophthora radicans		
7922	Conidiobolus coronatus		
7937	Pandora neoaphidis		
7938	Pandora neoaphidis		
7939	Pandora neoaphidis		
7942	Conidiobolus sp.		
7944	Conidiobolus iuxtagenitus		
8000	Schizangiella serpentis		
8023	Conidiobolus coronatus		
8047	Schizangiella serpentis		
8307	Basidiobolus haptosporus		
8308	Basidiobolus ranarum		
8309	Basidiobolus haptosporus		
8313	Conidiobolus sp.		
8314	Conidiobolus sp.		
8320	Conidiobolus adiaeretus		
8328	Basidiobolus ranarum		
8329	Basidiobolus meristosporus		
8330	Basidiobolus magnus		
8331	Basidiobolus haptosporus var. minor		
8332	Basidiobolus heterosporus		
8427	Conidiobolus adiaeretus		
8428	Conidiobolus megalotocus		
8429	Conidiobolus sp.		
8430	Conidiobolus stromoideus		
8455	Conidiobolus coronatus		
8466	Zoophthora radicans		
8606	Furia ithacensis		
8607	Pandora neoaphidis		
8715	Conidiobolus coronatus		
8926	Furia gastropachae		
8930	Pandora nouri		
8931	Pandora nouri		
9266	Pandora heteropterae		
9295	Conidiobolus coronatus		
9296	Conidiobolus coronatus		
9536	Conidiobolus obscurus		
9887	Basidiobolus sp.		
9888	Basidiobolus sp.		
9889	Basidiobolus sp.		
9890	Basidiobolus sp.		